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The Doughboy Versus the Bird-man

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- Manual of the Guidon.
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- Extended Order. Rifle and Machine Gun Squad, Platoon and Company.

PART TWO—*Ceremonies and Inspections:*
- Dismounted Ceremonies.
- Inspections.

PART THREE—*The Infantry Pack. Display of Equipment. Tent Drill:*
- The Infantry Pack.
- Display of Equipment, Foot Troops.
- Shelter Tent Drill.
- Wall and Pyramidal Tent Drill.

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CONTENTS

THE COMPOSITION AND EMPLOYMENT OF INDEPENDENT ARMORED FORCES..Col. E. G. Hamilton..... 223

THE DOUGHBOY VERSUS THE BIRDMAN .....Lieut. R. E. Jenkins..... 232

TRAVAIL AND PROGRESS.....Col. Joseph Bondy..... 240

THE PHILOSOPHY OF A SOLDIER.....Lieut. R. W. Marshall..... 250

GETTING RID OF THE LINE.....Captain X..... 255

THE TRAINING OF THE INFANTRY TEAM .....Capt. Joseph L. Tupper and 1st Lieut. Joseph I. Greene..... 260

REFINEMENTS IN MECHANIZATION.....Lieut. Robert J. Icks..... 267

A SAND TABLE PROBLEM FOR A BATTALION INTELLIGENCE PLATOON..Lieut. W. G. Shelton..... 274

WHERE UPTON MADE HIS BIG MISTAKE..Lieut. Col. R. M. Cheseldine..... 279

MILITARY AND CIVIL POWER IN THE PHILIPPINE ISLANDS.....Capt. S. F. Cohn..... 289

NOTES FROM THE CHIEF OF INFANTRY..... 292

Refresher Course at Tank School—Reorganization of the Infantry in the Division—Infantry Team—National Matches—Cartridge Belts, Dismounted—Classification of Infantry Officers—Qualification with Infantry Arms—Miscellaneous Notes.

REVIEWS AND DISCUSSION..... 301

Military Procedure—Fire-Power Plus Mobility Behind an Adequate Shield—Kenmore.

THE INFANTRY 308

Regular—National Guard—Reserves.

BOOKS 332

THE INFANTRY ASSOCIATION..... 334

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INFANTRY JOURNAL

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The Composition and Employment of Independent Armored Forces

COL. E. G. HAMILTON, C. M. G.; D. S. O.; M. C.[1]

THERE can be no doubt that the advent of the armored fighting vehicle has materially altered the method of conducting warfare. Whether a nation decides to use armored vehicles or not, it must carry out extensive alterations in the armament and equipment of its army. If it has sufficient faith in the power of these new instruments of war to adopt them, then it must make radical changes in its military organization and tactics. On the other hand, even if it decides not to use them, it can hardly ignore them. Unless it wishes to court almost certain disaster, it must take measures to meet the possibility of their being used by other nations—as they very probably will be.

It is not the purpose of this article to discuss the question of whether or not armored fighting vehicles should be employed, but to consider how they should be employed, or rather one method of their employment.

Leaving aside for the present the question of the use of armored cars for distant reconnaissances, or the cooperation of armored cars and light tanks with cavalry, there are two principal methods of using armored fighting vehicles:

1. In close cooperation with infantry formations.

2. In independent armored brigades—that is, in forces which are entirely mechanized, and which may—and generally will—operate at some distance from the remainder of the army.

The title of this article is "The Composition and Employment of Independent Armored Forces." Attention is drawn to this because it is the order in which these two problems are often discussed and generally considered. But is it the correct order? Surely not. Let us take the case of a man who has determined upon a shooting expedition. How does he approach the problems? Does he go off to a gunsmith and buy the weapons which most take his fancy, then return home and ask himself, "Now, what shall I shoot with these beautiful things I have bought?" Certainly not. Surely he

[1] British Army

makes up his mind what he wants to shoot, and then procures the best possible weapon for his purpose. But the matter is not quite so simple as it sounds. When our sportsman is making up his mind what he wants to shoot, he must bear in mind what types of guns or rifles he can buy—it is no use for him to decide to shoot deep sea fish, because, so far, no lethal weapon has been produced for this purpose.

Similarly, when making up our minds as to how we would like to employ independent armored forces, we must constantly bear in mind what armored fighting vehicles and other mechanized vehicles are available, or are likely to be available in the near future. But before making our choice from among those which are available, we must first decide upon the rôle of our independent force.

It is quite useless to imagine that any civilized nation will, in future, go to war without having made some preparations to deal with the enemy's armored fighting vehicles. The armies of every nation will soon, even if they do not at present, contain such counter-weapons as antitank guns and antitank mines. By a skillful use of these, by taking advantage of natural obstacles, and by the preparation of artificial ones, normal infantry formations, when in position, will probably render a very good account of themselves and make a frontal attack by independent armored brigades a very hazardous and costly operation. Such formidable positions would appear to be best dealt with by armored fighting vehicles acting in close cooperation with infantry formations which can produce the necessary amount of gun fire, machine gun fire, and smoke to neutralize the enemy's antitank weapons.

A more easy prey for armored brigades would be detachments which cannot secure both their flanks, columns on the move, supply columns on the lines of communications, or a defeated enemy in retreat. Such armored units might with great advantage be employed to delay an enemy's advance, and so gain time for their own main forces. In fact their natural rôle appears to be very similar to that formerly allotted to independent or strategic cavalry. Indeed an independent armored brigade has many of the characteristics of a force of strategic cavalry.

The moral and material effects of a strong force of strategic cavalry in the hands of a bold commander have always been admitted to be great. But how much greater they will be in the case of a force with infinitely more striking power, capable of moving twice the distance in half the time! A commander will be unwise ever to forget the enormous moral effect of such a force; the possibilities of exploiting this advantage will be tremendous. It is a matter of history that, during the American Civil War, General Jackson, although not strong in cavalry, by his bold and rapid movements kept many times his numbers from participating in the main battles. He was able to influence not only the Federal commander, but also the Federal Government. Yet his mobility and striking power were not very much greater than those of his opponents. It is almost impossible to estimate what his influence would have been had he commanded a force as superior in mobility and fighting power to his opponents as

an armored force is today over normal infantry formations.

It is clear then that one of the rôles of armored forces is to keep the enemy on tenterhooks and persuade him to dissipate his strength in an endeavor to guard against sudden and surprise attacks over a very large area.

So long as the greater portion of armies consist of infantry formations reinforced with armored fighting vehicles as well as antitank weapons and devices, the main battles will be fought between such masses. Independent armored brigades will form powerful supplements to the main armies. One of the accepted principles of war is that a commander shall concentrate the maximum available force at the decisive time and place. When the battle between the main armies is reaching a climax, a wise commander will, therefore, turn his thoughts to his armored brigade—or brigades. He may employ them to deliver a decisive blow in direct cooperation with his main army, supported by a heavy concentration of its guns and machine guns, or he may decide to use them in less direct cooperation, such as passing round a flank and attacking the enemy's reserves and gun lines. The great mobility of an armored brigade and its power to cover considerable distances will enable it to be employed upon the various subsidiary missions suggested and yet be within call when it is required to take its part in the decisive phase of the decisive battle.

War for an independent armored brigade will not be a rest cure.

In order to fill the rôles suggested above, an armored brigade must be capable of a reasonably high average speed, and should have a minimum circuit of action of from sixty to seventy miles—which means that it should be capable of moving that distance without refueling. As roads are somewhat easily blocked, and columns on roads are very vulnerable to action by hostile aircraft, all fighting machines and vehicles which accompany the brigade must be capable of movement across country. The armored brigade must, of course, contain a number of cross-country fighting vehicles, in order to be able to hit hard when necessary. If there is any possibility of meeting hostile armored fighting vehicles the force must contain a proportion of fighting vehicles capable of dealing with the situation—that is to say, they must mount small guns or other weapons capable of piercing the enemy's armor.

It may be accepted as a fact that small guns or machine guns fired from such an unstable platform as a tank in motion are at a disadvantage against guns in a concealed position on the ground. More accurate covering fire than that produced by their own efforts is therefore necessary for tanks in the attack, when they are likely to be opposed by artillery or other antitank guns. This covering fire must be accurate and immediate. The weapons must, therefore, be close up, so that they can fire at decisive ranges and so that the crews can themselves locate the enemy's guns.

The crews must be protected. The obvious solution lies in artillery tanks, that is, tanks mounting light field guns or howitzers, which can move forward with or immediately behind the attacking tanks, and which should stop and open fire as soon as the defending guns have disclosed their positions. To

supplement this covering fire a proportion of the light tanks might be allotted a similar rôle—using, of course, their machine guns.

Thus far our armored brigade consists of medium and light tanks for the attack, artillery tanks, and more light tanks to support the attack with fire. What other units are essential? A signal section or company is obvious. As the force will certainly be singled out for marked attention by the enemy's aircraft, an antiaircraft battery and a liberal supply of antiaircraft light automatics will be necessary. The question of the inclusion of armored cars will depend upon the distance from its permanent "port" or base at which the brigade must operate. If the distance is great, the brigade commander will require information of the enemy's movements earlier than he could obtain it by means of his usual reconnaissance vehicles—the light tanks. If, on the other hand, the distance is only comparatively short, light tanks will fulfill his requirements. It does not, therefore, appear necessary that armored cars should form part of the permanent organization, provided it is recognized that they should, on occasions, be attached to the brigade.

There now arises the question of the inclusion of tractor-drawn or self-propelled artillery of a heavier caliber than any yet mentioned. There are many arguments in favor of it. It will be made clear in a later stage of this article that it is by no means considered inevitable that an armored force must "crash right home" in order to fulfill its object. When opposed to a resolute enemy, suitably supplied with the necessary weapons, there will always be the risk that a "charge home" may be an expensive operation. By using its mobility and its very great fire-power, the brigade will often be able to fulfill its mission by circling round the enemy and playing the game of "tip and run"; in fact, by emulating the ancient Parthian light horsemen, with their showers of arrows and elusive tactics rather than the medieval knights in armor and their shock tactics. Constant thrusts and feints carried only sufficiently far to enable short bursts of fire to be brought to bear upon the enemy, without giving him time and opportunity for effective retaliation, will probably induce him to crowd into antitank localities—what an ideal target for artillery! Picture a small wood or village crowded with men and transport! Does it not suggest a bloodthirsty gunner's dream? It has been already suggested that armored brigades might be employed for the purpose of delaying an enemy's advance or to carry out an energetic pursuit. For both these functions, artillery—with reasonably long range—is extremely useful.

There is also the question of aircraft. The most formidable opponents of armored fighting vehicles are field guns and the various types of antitank guns. Early information of their location is of vital importance. This can often be obtained by aircraft, which may, on occasions, even see the guns being moved into position. Early information of the enemy's movements before contact is obtained on the ground is also very important. The effectiveness of artillery fire is greatly enhanced by the assistance of artillery spotting machines. These would appear to constitute sufficient arguments for the employment of army cooperation squad-

rons with armored brigades, even if they are not permanently allotted to them. The question of fighter squadrons is somewhat different. From the point of view of a cooperation squadron, there is not much difference between cooperating with an armored brigade and any other formation—cavalry or infantry. Therefore, no special training is necessary. But the function of fighter squadrons acting with an armored brigade are not normal. Their primary task (but not their first one) is to engage hostile antitank guns at the moment when the tank attack reaches the danger zone. Their secondary task (which will be their first) is to attack the enemy's columns, cause them casualties and throw them into confusion just before the tank attack, and so impede the efforts made to repel it. These duties are highly specialized and entail considerable detailed knowledge of the methods employed by armored brigades. For this reason it is contended that a fighter squadron should form an integral part of the brigade. There can be no question of this fighter squadron being also charged with the duty of protecting the brigade from hostile aircraft. For one reason, such a duty is not compatible with the performance of its special tasks. Secondly, one fighter squadron would exercise but a very small influence upon the air situation. If the enemy made a determined effort to damage or hinder an armored brigade by aerial attack, he would have to employ large numbers of aircraft, which would create an air situation for the commander-in-chief and his principal air force commander to meet. Minor air attacks will have to be met by evasion (i. e., by breaking up into small groups which present difficult targets) and the use of antiaircraft weapons.

Thus far our brigade consists of:

Headquarters,
Signal Section,
One Field Artillery Brigade,
One Battalion Medium Tanks,
Two Battalions Light Tanks,
Two Artillery Tank Batteries,
One Mechanized Company of Engineers (with tank bridging equipment),
One Fighter Squadron of Airplanes,
One Army Cooperation Squadron of Airplanes,
One Regiment Armored Cars (when necessary).

There is one important element which is conspicuous by its absence—foot troops. There are many who argue that foot troops carried in mechanized vehicles should be added. There are strong arguments in favor of their inclusion, and also against it. The principal arguments put forward in favor of the inclusion of foot troops are:

1. An armored brigade cannot itself force the passage of a river or stream. Foot troops are required to secure the initial footing on the other side.

2. Foot troops would be very useful for protective duties when the brigade is halted.

3. Foot troops necessary for holding bridges and other defiles over which the brigade may wish to retire.

4. Foot troops necessary for holding ground or position captured by the brigade.

Let us return to the consideration of what are the normal and principal rôles or functions of an armored bri-

gade. To attack hostile columns on the move, isolated detachments, and supply columns; to carry out an energetic pursuit of a defeated enemy, or to delay an advancing one; to carry out raids against important nerve centers such as the enemy's capital, other important towns, or industrial areas.

In every one of these functions speed is of vital importance. Would the brigade commander be justified in undertaking such a slow operation as forcing the passage of a river if he could possibly avoid it? The enemy cannot hold a river everywhere. Would it not in nearly every instance be much quicker for the brigade to take advantage of its mobility and to move around the opposition? When there is no way round, then the higher commander who allots a task to an armored brigade which will necessitate its forcing a crossing of a river should supply the foot troops necessary for the operation. In none of the rôles which have been suggested as suitable for an armored brigade is there any apparent necessity for it to halt, either by day or by night, near its enemy. It need not, therefore, fear any action on the part of the enemy's foot troops. Hostile aircraft or armored fighting vehicles appear to be the only danger, and against either of these foot troops can afford only very meager protection. A mobile striking force should surely not concern itself with the capture and retention of ground. Its true objectives are personnel and materiel. Having done as much damage to both as is possible, with the minimum of loss to itself, it should withdraw out of range of such hostile guns as may still be in action, and, if necessary, repeat the operation elsewhere. It may, on occasions, be a wise precaution to secure a bridge or some other defile for use when withdrawing. But a few light tanks would appear to be as useful for this purpose as truck loads of foot troops—if not more so.

The disadvantages of including foot troops in the brigade are as numerous as the alleged advantages. It means a considerable increase in the number of vehicles with the brigade, as well as an increase of the number of men who are not provided with protection by armor, and who consequently become a source of anxiety. As one distinguished officer put it, "to mix up unprotected infantry (foot troops) with armored fighting vehicles is like sending naked men into the lists to contend with knights in armor."

For the above reasons the inclusion of foot troops is definitely not recommended; although it is admitted that there are many people with considerable experience, whose opinions deserve very great consideration, who do not agree with these arguments nor with the conclusion drawn from them.

The functions of an independent armored brigade have been discussed and its composition suggested. There now remains the question of the method of its employment. There is no intention of entering into details of the minor tactics which each unit should employ. Even were the writer competent to do so, it is outside the scope of this article. All that is intended is to suggest certain underlying principles which should govern the action of armored brigades.

Let us first consider what armored fighting vehicles have achieved, and also their limitations. It may with justice be claimed that they have gone

a long way toward neutralizing machine gun and rifle fire employed by the old methods. They have enabled us to combine three great essentials of warfare—fire-power mobility, and protection. But it can never be hoped to produce a tank or any other armored vehicle which is proof against a direct hit from even a small shell; nor are they at present, or likely to be in future, proof at very short ranges against a large machine gun firing a heavy, armor-piercing bullet. Protection against shells and heavy machine gun bullets must be sought by subjecting these weapons to covering fire, by making use of cover during an approach, by smoke, and, above all, by remembering that speed is armor. The greater the speed which can be maintained, the more difficult will the target be. It is obvious that the distance of a tank from a gun is also a very important factor. It may be accepted as a rough guide that a tank moving at a speed of over eight miles an hour has little to fear from single guns at ranges over one thousand two hundred yards, or from heavy antitank machine guns over six hundred yards. Both these distances are well within the effective range of the ordinary machine gun, which is used in the tank, but against which the tank is protected. It is, therefore, possible for tanks to remain outside the effective range of the enemy's antitank weapons, and yet do considerable damage with their own fire-power. Here we have our first principle: *Never risk the loss of armored fighting vehicles by closing with the enemy, if the object can be obtained by remaining outside the effective range of his antitank weapons.*

This sounds more like a platitude than a principle, but it is not so in reality. On many occasions the object will only be attained by crashing through the opposition, and accepting the risk of losses. The fact that such drastic action is often necessary may lead to its being considered inevitable —unless the above-mentioned principle is remembered. The point is of sufficient importance to justify the allotment of a certain amount of space to discussion of it.

Mention has already been made of the methods of the Parthians, who, it will be remembered, were the successors to the Assyrians, Persians, and Greeks as the rulers of a large portion of western Asia. They owed their rise to fame and power to the peculiar, but most effective, tactics that they adopted. Their armies consisted very largely of cavalry, heavy and light, the latter by far the more numerous. The light cavalry, armed with bows and arrows, used fire-power primarily, the heavy cavalry, shock tactics. Their methods are best explained by a brief description of the battle of Carrhae.

In 54 B. C. Crassus, the Roman commander, set out to march across the desert of Mesopotamia, en route for Ctesiphon. Near Carrhae he was opposed by the Parthian army which consisted entirely of cavalry and which, up to this point, had done nothing to hinder the Roman march. Suddenly the Romans were attacked by swarms of light horsemen who completely surrounded them, dashed up to within range of their own arrows, but kept outside the range of such missiles as the Romans possessed. This went on for several hours, during all of which time the Romans suffered constant losses and the Parthians prac-

tically none. All efforts of the Romans to close to within effective range of their own weapons were frustrated by the fact that the Parthians took advantage of their mobility to maintain the fight at ranges favorable to themselves only. It was an axiom of their tactics that they never closed with their enemy until he had suffered such loss of men and morale that their heavy cavalry could charge home without fear of severe losses. Actually at Carrhae, the Parthians did not charge home at all, as the survivors of the Romans beat a hasty retreat during the night to the security of the fortified town which gave its name to the battle. Roman historians coupled Carrhae with Cannae, regarding these two battles as the heaviest defeats ever suffered by the Romans.

Let us apply the principle to a hypothetical case under modern conditions. We shall assume that an independent armored brigade is to delay and inflict casualties upon an infantry division, well supplied with antitank guns, which is marching to reinforce its main army. We shall also assume that it has been explained to the commander of the armored brigade that he is required to put the division *hors de combat* for several days, but that his brigade will be recalled in time to take part in the main battle which is imminent.

There are two ways in which the brigade commander can attain his object. By harassing and delaying the heads of the columns with a part of his light vehicles, and at the same time striking him one or two severe blows with the remainder of his brigade, going "all out" and causing as much damage as possible in the shortest time. Or he can adopt what, for want of a better name, may be termed "Parthian" tactics. Let us visualize light tanks darting about almost everywhere; small composite groups, each consisting of medium and light tanks as well as artillery tanks, making frequent raids to within effective range of their weapons; field artillery engaging all suitable targets from constantly changing positions, and particularly, good targets offered by the enemy crowding into antitank localities; other tanks or armored cars cutting off all supplies; and finally, aircraft constantly harassing the enemy with bombs and low-flying machine gun attacks. The second method may not be so rapid as the first, but there is no reason to suppose that it would not be as effective. There can be little doubt that the risk of heavy losses will not be nearly so great. However, time may be an important factor, so important that the more vigorous methods must be adopted. Also, the enemy may surround his main body with strong protective detachments, such as advance guards, flank guards, and the like, which are strong in antitank weapons; in which case it is obvious that an armored brigade must accept the risks involved in breaking through them.

The second principle is one which is common to all forms of warfare. *Any attack must be supported by all the available covering fire which can be brought to bear upon those weapons of the enemy from which the most effective opposition is to be expected.* In an infantry attack these are machine guns and rifles. In a tank attack they are antitank guns.

The third and last principle which will be mentioned is also one of the

fundamental principles of war—*surprise*. As the enemy will be supplied not only with aircraft but also with means of ground reconnaissances, it will seldom be possible to disguise from him the fact that an attack is imminent. But, by using feints and by taking advantage of its mobility, an armored brigade can, until the last moment, keep the enemy in ignorance of the actual direction of the attack. This is a matter of vital importance. If he has time to place his antitank weapons in the best possible positions to deal with the attack, the losses will obviously be far greater than if he has been induced to put them all in the wrong places or has to rush them up at the last moment.

To those persevering readers who have reached the end of this article the writer would make two requests. First, that they will regard the opinions expressed as personal, and will realize that they do not represent the views of the British military authorities. Second, that they will acquit the writer of the charge of bellicosity. In common with most other professional soldiers he does not regard war as either desirable or inevitable—but as an unpleasant possibility.

The Plaint of a Top Sergeant

WHENEVER the C. C. gets hell from the C. O., he in turn throws everything at the first sergeant.

Whenever a report is late at regimental headquarters, the first sergeant gets the blame.

Whenever anyone displeases the C. O., the first sergeant has to weather the storm.

Whenever there is some hard work to be done, the first sergeant gets it to attend to.

The first sergeant has to stand cussing from the lower rank as well as from the other rank. He has three kinds of shoes to take care of—his own, those of his enlisted personnel, and those of his officers. Otherwise, at inspection, it is "Sergeant, why are those shoes dirty?"

The first sergeant has to see to everything although he has only two eyes, and he gets hell from everybody.

To be a first sergeant, liked by men and officers, and at the same time to have a disciplined outfit, is no mean trick to pull—and that's why I am only a "goat."

Should this be so?

The Doughboy Versus the Bird-Man

LIEUT. R. E. JENKINS, 15th Infantry

DURING that unpleasantry of twelve years ago John Doughboy's most confounding problem was how to meet successfully that daring bird-man who dropped suddenly out of the sky or zoomed from behind a nearby hill or wood to race madly over a column or line with his guns smoking, spreading death and demoralization. This devil's twin brother was equally confounding when he appeared, kicked a half dozen bombs into the middle of a formation, and then whizzed serenely away before the terror-stricken Doughboy could recover his wits. Most officers and soldiers who were on the receiving end of these attacks agree that such moments were, without doubt, the most terrifying of their entire war experiences. These attacks were so feared that no officer or soldier in a deployed formation dared move or look up while an enemy plane was near. If a unit was in a more or less compact formation, individuals scattered, dashed for cover, and threw themselves flat on the ground, face down. Of course there were exceptions to this, and there are many instances in which men scattered and then fired on the plane, but such practice was far from general; the common belief was that rifle fire would have no effect on low-flying planes, but instead certainly spelled trouble for those brazen enough to attempt it.

We can not say that those men to whom these air attacks were so terrifying were cowards. These same men, immediately after an air attack, would cross a shell-swept area and very methodically go about the reduction of a position fairly alive with machine guns which belched forth more death and destruction than a half dozen air attacks would deal. If these men were not afraid of death, then it was something besides fear of these attacks that struck terror to their hearts and caused them to dash for cover or lie motionless upon the approach of an enemy plane, instead of going about the business of bringing it down. This "something" could have been only one thing. Ignorance. Ignorance of how to cope with the situation. This terror was the result of that feeling of utter helplessness that comes over a man who is confronted with a desperate problem that seems to have no solution. These men had learned how to fight an enemy on the ground and this knowledge gave them confidence, but this bird-man was something new. There were no authorities to whom they might look for advice. They had to learn from experience how to fight this man, and each lesson was a bitter one, sometimes leaving even the strongest men cursing and muttering incoherently in their helpless terror.

However, that is all history. The future is what concerns us most. Three questions that John Doughboy is deciding now are, "How much are we to profit by our experiences of the World War?", "Shall we add another subject to our annual training pro-

gram?", and, "If so, how are we to teach this new subject, antiaircraft defense?" The first of these questions can only be answered by our answer to the other two. The second has been positively, and the last tentatively, answered.

The question of defense against aircraft became an all-important subject with John Doughboy immediately after the war. Tests of various types were conducted to determine the means whereby he might learn to meet these dreaded air attacks with the same calm deliberation and determination with which he faces the crack of the rifle and the rattle of the machine gun.

One day a number of skeptical officers went out to witness one of the first tests. A section of untrained riflemen was firing, to the best of my recollection, one round of tracer for every round of ball at the now well-known sleeve target, towed by a plane at a rate of about one hundred miles an hour. The firing began with the plane flying about three hundred feet from the ground and perpendicular to the line established by the deployed section. The observers, experienced and inexperienced alike, stood by in blank amazement and watched this section of untrained riflemen stand up from their deployed position on signal and hit the sleeve target with tracer bullets with seemingly little effort. The next surprise came a little later, with the report from the landing field that the sleeve had been hit, if memory serves me right, thirty-two or thirty-four times. These riflemen who were still getting many hits at twice three hundred feet height, were of the same type as those whom we would not let fire at a low-flying plane during the World War.

From these tests John Doughboy learned that he can be a real menace to low-flying planes, instead of just a target. He made his decision to shoot down this daring bird-man in the future, but first he had to answer the question, "How am I to learn the art?"

Few infantry posts are so situated as to permit firing at sleeve targets towed by planes, so it quite naturally follows that some good substitute had to be devised. The Infantry Board was assigned the task of developing a scheme whereby all riflemen might be taught to shoot at and hit a speeding plane. The results of its efforts are set forth in TTR 300-5. This pamphlet was distributed to regiments last season, and all regimental commanders were directed to submit reports on results obtained from its application, together with recommendations for changes or additions.

This pamphlet reached the 15th Infantry a few days before the opening of our annual target season. All officers were required to make a careful study of it with a view toward later rendering to the regimental commander a report similar to that required of him. On our range at Chinwangtao we constructed a small-bore antiaircraft range that conformed with the prescriptions of TTR 300-5 in all but two respects. It was found that the movement of all targets could be effectively controlled from behind artificial cover at the target; and it was discovered that no truck axle or roller bearings could be procured without the expenditure of funds so the swinging target was erected on a simple,

solid steel pin. This mounting worked as smoothly and efficiently as could have been desired throughout the entire season.

The range itself is ideally located, with open sea and sky for a background. One officer was detailed to the antiaircraft range to handle the instruction in that class of firing. His work, instead of being difficult and disagreeable, was the most desirable task at camp. The subject was something new and the troops simply "ate it up." We began our known distance firing on the "A" range, and as soon as the first group had completed record firing, instruction in antiaircraft firing began.

The course of instruction described in the pamphlet was followed closely; it had a fair test and the results were most gratifying. The 15th Infantryman has discovered that he can hit a moving target, and a small one, with a single bullet—if he "leads" the target and squeezes the trigger. The best shots, of course, were discovered to be those men who had some experience shooting running or flying game. These men readily understood the idea of "leading." Men without this experience had greater difficulty and made somewhat poorer scores. Since the latter class are certainly in the majority it was decided that more time than the pamphlet calls for should be spent next year on triangulation and firing at stationary targets.

As the groups completed the antiaircraft course and the results of their firing were announced a keener sense of its importance and possibilities became apparent to officer and soldier alike. A rivalry between men, squads, platoons, and companies developed, and friendly rivalry always stimulates interest. One man who was a very poor shot on the "A" range took special delight in telling how his squad, the "runts" of the company and not good shots on the "A" range, had given the other squads in the battalion a trimming on the antiaircraft range. If we are to use enthusiasm as a yard stick with which to measure success in imparting a subject to the soldier in an interesting manner, there can be no doubt as to the soundness of this pamphlet in that respect.

On the whole this regiment finds this newly developed method of teaching antiaircraft firing sound and interesting. It has, however, received some criticism from both officers and soldiers. The chief criticism from the soldiers is that the modified kneeling position is too unsteady, and most of them felt certain of better results if permitted to use the standing position. This criticism came particularly from the experienced hunters. Most of the officers agree that at least some training should be had in the standing position, since much such firing must of necessity be done from that position. A few of the officers criticized the inverted pendulum of the swinging target on the ground that it is abnormal and bears no true relation to the usual course of a plane in flight; another group is of the opinion that, within the limits of its upward and downward swing, it is a true enough representation of a plane rising or banking away at an angle to the firer, and of a plane diving or banking into position at an angle to the firer. The latter group seems to be in the majority. It is generally believed that the speed of the vertical target should be increased

to give a true representation of an attacking plane. The target on an aerial runway, such as described in an article by Captain Ryder in the September, 1929, INFANTRY JOURNAL, is thought to be an excellent supplement to, or even substitute for, this target. The present plan of the regimental commander is to construct such a target for experiments, and if found satisfactory, for use in the training of the regiment during the next target season.

One officer's first comment on the course was, "It is unnatural and preliminary." Such a statement is itself inaccurate. If it is unnatural it can not be even a preliminary. The course as generally seen is just as natural as our gallery range courses with the .22 caliber rifle, and the reason for its existence is just as important. All infantry regiments have an opportunity to fire the service rifle on the "A" range annually, but those that have opportunity to fire the service rifle at towed targets are indeed few. The course must be considered as only basic, and accepted and put into use as a preliminary to, or substitute for, that more beneficial training which the location and facilities of our station may deny us. If we wish to see the show and find that all the best seats are sold, we either decide to go home and not see the show or we buy seats just in rear of the best—and at least get some faint idea of what the show is all about. What are we, who are denied the best method of training men in this subject, going to do about it? Use the best-known substitute, or do nothing?

Since no subject is of more importance to our branch than defense against aircraft, it is only natural that this subject should be the topic of professional conversation more often than any other. The commissioned personnel of the 15th Infantry, while not agreeing in every detail with the principles and the course laid down in TTR 300-5, have agreed that it is basically sound.

The discussions have been many. Several ideas have been advanced that will be given tests during the coming target season. One of them is the use of a service stick rocket to pull a light silk sleeve target through the air, the firing at it to be with the service rifle. A sleeve made of silk would be light and could be sufficiently large to offer a proper target. One disadvantage would be its liability to ignition by the lifting charge in the rocket, but this should be easy to obviate by fastening the sleeve at a safe distance from the rocket by means of a long piece of light piano wire. Another disadvantage is the allowance of rockets for training purposes.

Another suggestion is the use of the trench mortar as a motive power. It is advanced that by fastening a light sleeve target to the head of a dummy mortar bomb by means of light piano wire the sleeve could be pulled through the air for some distance at a fast rate of speed. The stiff piano wire should not buckle up in the barrel of the mortar as the projectile comes out, but should come out easily without causing any damage to the mortar. This should furnish an excellent means for pulling sleeve targets. Dummy bombs can be easily made and would not receive material damage during use. Sleeves should be easily made and material for them should not prove so very expensive. The only real expense would be

the cost of the propelling charge for each bomb fired.

Another idea to be tried out is the use of the common kite to represent a diving plane with the kite string wound on a hand reel of sufficient size to give it speed. These kites can be used in any number to represent attacking planes in any formation, and used as targets for from one man to a platoon. They should furnish an excellent means of teaching the assignment of divisions of a flight to a section or a platoon. By using box kites the firing could be from either the front or the side. The only great disadvantage to the use of kites is that the wind must be favorable to the direction of the range during firing.

Another idea for teaching the effect and value of "leading" is to nail an "E" target crosswise on a long stick and have a man move it the length of the butts on the "A" range, or not to exceed a distance of one hundred yards. The man moves first at a walk, then at a trot, and then at a dead run. This scheme would require a large pit detail in order to operate enough targets to be of value, but it sounds workable and costs nothing to try.

These untried suggestions all sound reasonable and are offered as a possible solution to the training problems of those organizations without air units nearby upon whom they can call for assistance during their target seasons.

From the air demonstrations at Fort Benning in May, 1928, four conclusions were drawn that are of especial interest to John Doughboy. They are: first, casualties from aircraft fire will result largely from bombing; second, the effect of aircraft machine gun fire on dispersed columns is negligible; third, fox holes are adequate protection; fourth, the most protection will be obtained by counter measures. (The report of this demonstration appeared in the INFANTRY JOURNAL of August, 1928, from which these conclusions are quoted.)

Before the summer of 1929 there had been very little thought given to the tactics of antiaircraft defense in this regiment beyond the use of the usual prepared machine guns in the column or bivouac for instantaneous fire against low-flying planes. There had been little or no work toward teaching rifle units how to conduct themselves in the event of low-flying attack from the air, except the usual instructions to scatter and seek cover. The pendulum has swung back, however. The horizon has broadened immeasurably and the regiment is firmly launched upon a new era of training. We are having one period each week devoted to the tactics of this subject, and, since there are as yet no established doctrines, even the private soldiers are advancing ideas as to formations and means to prevent surprise attacks and to meet expected attacks when they do come.

Work on the subject began during the maneuvers at our 1929 summer camp, but there was lack of formulated ideas, and little other than the usual results were accomplished. The adaptability of formations and the use of cover from aerial observation were stressed, but few steps towards counter measures were decided upon other than the preparation of machine guns for antiaircraft fire. However, since the full import of the results of the firing on the antiaircraft range has been realized, there has been considerable

serious thought to the subject of counter measures. The chief consideration has been of how to utilize hitherto unused fire-power against aircraft and at the same time to retain complete control over the command.

There is a general agreement that only a small part of the command should be assigned the mission of firing on low flying planes, while the rest of the command seeks safety in deployment and use of cover. There is unanimous agreement that there must be air guards as described in TTR 300-5, detailed to move by bounds parallel to a column on the march or to be stationed at favorable points for observation some distance from the command while in bivouac, to give ample warning of the approach of enemy aircraft. There is also a definitely formed opinion that troops should be detailed to firing missions and be so posted as to protect the remainder of a command in bivouac. The demonstration of the effect of aircraft against a battalion in bivouac as fired at Fort Benning was an interesting example. This battalion was bivouacked in a wood four hundred and fifty yards long by from seventy-five to one hundred yards wide. It is believed that a battalion commander who bivouacs his battalion under any such conditions can protect his troops very effectively by detailing a platoon of riflemen and a platoon of machine guns to the important mission of protection, in addition to posting the necessary air guards. It is reasonable to assume that any troops in bivouac are subject to air attacks, and there will always be a feeling of restlessness; but if the soldier can lie down knowing that someone has been detailed to protect him he can rest with a reasonable feeling of security. Using this demonstration as an example, the following sketch is offered as a solution to the battalion commander's problem:

All men of this detail need not be awake at all times, but must rest or sleep on their weapons; one man is posted over each detachment to watch in the direction of the air guards who are posted still farther out. When an alarm is given he arouses the remainder of the detachment and all prepare for action.

It is generally believed that the defense of troops in bivouac will prove much easier than the defense of troops on the march. Unless we desire a repetition of our most recent experience infantry can have only one line of action, and that is to deploy, if not already in an open formation, and deliver a positive and effective fire on the attacking planes at once. To troops already deployed the opening of fire will be simple enough, but to troops in column of route the method of deployment will be one of many solutions, depending largely on the nature of the terrain over which they happen to be marching at the time the attack is launched and on our present formation for column of route. In the past there has always been the everlasting cry of "Cut down the road space" and "Keep the column closed

up." Indications point to a change in our future operations, to a definite lengthening of the column and a broadening of the front of the column to meet this disadvantage, even at the expense of slowing up the rate of march. Slowing up the rate of march by having troops march cross-country, paralleling the column on the road, will have to be given careful consideration. "Time" is the most important factor in any operation, with the possible exception of "Safety" which is more often than not determined by the former.

In this regiment the trend of thought is generally toward the adoption of positive measures from our present marching formation, with the distances between companies and platoons somewhat extended. As in most other regiments, I suppose, these positive measures are in the earliest stage of development. Many plausible solutions are being offered and tried by the various companies, but as yet none has been definitely adopted.

To give some idea of the difficulties in this training it is necessary to draw a word picture of the terrain over which we conduct our fall, winter and spring training. The nearest maneuver grounds to our barracks are about one and one-half miles away, and when you arrive there all you can see for miles is a flat plain dotted with grave mounds, an occasional brick kiln, and a few scattered trees and shrubs. There is not a known hill nor a patch of woods within fifty miles of Tientsin from behind which an air attack could be suddenly launched. From any position along the roads or fields you can see a plane for miles unless it gets close enough to the ground to "hedge-hop." So in order to carry out a problem much must be "assumed," even to hills and trees. If our training were based on the terrain over which we must operate around Tientsin we would have enough time to deploy the entire regiment safely in column of companies astride the road between the time the attacking planes would be first sighted and the time they could get in position to attack. Our annual maneuvers and training tests take place at Chinwangtao. Here the terrain lends itself better to the subject, for there are dense woods nearby and an occasional hill in the vicinity of our maneuver area. It follows, then, that our training must be such as will meet the requirements of both Tientsin and the area around Chinwangtao.

Our problem of training for such terrain as we find around Tientsin is easy, a simple quick deployment and preparation to meet the attack with effective fire. Training for such terrain as we find at our summer camp, however, presents about the same problem it does in the average army post in the States. First comes the question of air guards; how many, where, and how posted? Next comes the formation or disposition of the command for the march or the bivouac. Next, the question of how many troops shall be detailed to firing missions, what shall be their size and disposition, and what negative measures shall be taken by troops not detailed to firing missions, and how shall they be taken? The first of these questions is almost immediately answered. The size of the command dictates a part of the second, while the remainder of the second and the last must be given careful thought.

The present combat strength of our rifle company does not exceed two platoons of four squads each, and in

the event of trouble that is the maximum strength with which companies of this regiment would enter into a campaign. Our training, then, must be based primarily on a company of this size. This strength normally determines how many troops will be detailed to firing missions. In the rifle company it is thought that the leading squad of each platoon is sufficient on the march. It is generally believed that they should have no special formation on the march, but should be in their regular places in their platoons. If an air guard gives an alarm these squads should immediately deploy astride the road and prepare to meet the attacking planes with fire. In this manner you have firing units deployed the entire length of the column, ready to fire in any direction, in addition to the machine guns mounted for that purpose.

The next question is the conduct of the squads of each platoon that are not assigned firing missions. First we remember that the most favorable target for a machine gun is a deep one; second, that casualties from air attack are "largely caused by bombing"; third, that "the destructive effect of the aircraft bombs is largely upwards"; and fourth, that "fox holes are adequate protection." From these we must conclude that companies, at least, must be widely disposed in breadth and that individuals should take such cover as is available in ditches, hedges, folds in the ground, and covered embankments. To accomplish this the leading platoon of a company should deploy on one side of the road and the rear platoon on the other. There may be some who think that there will not be enough time. According to the report of the demonstration at Fort Benning, they had forty seconds in which to dispose the column (TTR 300-5 allows much less than that), and this with an aviator thoroughly familiar with the ground and the location of the troops. If we base our training on an allowance of half that time, twenty seconds, we should feel safe. A well-disciplined platoon of four squads can, on signal, leave the road, deploy on average terrain at least twenty yards from it in that length of time, and have a second or two to spare. After this is accomplished we should not lose sight of the fact that "counter measures furnish the best protection." Men who are lucky enough to obtain a favorable piece of cover should immediately prepare to lend their fire to that of their comrades who are deployed astride the road and are awaiting the air attack or already have it engaged.

This is just one method of meeting the air attack while on the march that the 15th Infantry offers. Many others worthy of serious consideration have been suggested, but the above is submitted as our contribution to the book of experiments.

We must keep in mind the fact that the ever increasing operating range and speed of the plane likewise increases its danger to ground troops. It will play a still greater part in the next war than it did in the last. This fact we must also admit, that "to be surprised from the air is just as unforgivable as to be surprised from the ground." We are face to face with the question, "Who is to command the air within gun-shot range above us in the next war, John Doughboy or the enemy's bird-man?" The 15th Infantry has cast its ballot for John Doughboy.

Travail and Progress

A story of war

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"And thus it comes to pass, that Magna Charta, the Acts of the Long Parliament, the Declaration of Rights, the Declaration of Independence, and the Constitution of 1787, constitute the record of an evolution."—BRANTLEY.

THE pacifist and professional propagandist are holding before the people what to them seems a new doctrine, *the outlawing of war.*

It must not be presumed from anything that is said in this article that anyone can be in favor of war for itself, nor is it the desire of the writer to convey the idea that it is written in favor of war when there is no need for war. War has always been an outlaw. It was the last resort of kings and governments. If it can be further outlawed by human reason and means, it should be, just as cancer, tuberculosis, envy, greed and hatred should be "outlawed," whatever that may mean.

Before me is the old book of Treaties, made by the mother country, England. The book is dated 1740. In it I find treaty after treaty containing the words that "this peace hereby made shall be eternal, perpetual, and everlasting." It sounds most encouraging. Yet several of these treaties were made between France and England during the sixteenth century; and these two countries were at war for more than two-thirds of the time from the date of one of those treaties unto the present day. So it began to dawn upon me that the "outlawing" of war is not a new thing, and certainly must have been a most impractical or impossible one.

After each of our own great wars there has been agitation in favor of this "outlawing of war," just as there is today. Usually this agitation reaches its height about half way between one war and the next. It is no new idea.

Murder has been outlawed in all civilized countries for many years. Yet murders continue. They will always continue so long as human beings are as God made them. By a progressive improvement in human nature we may hope to diminish the number of murders, but we can never eliminate them altogether. The taking of a human life is not always unjustifiable. The law does it daily. There are even cases outside the law where it has benefited humanity.

So, in considering the "outlawing" of war, it is best to think of the reasons and the causes of war; better still to follow some of the wars of the past centuries and down to the present day, always remembering that the pacifist and professional propagandist are seeking to confuse the question of war and the hatred that everyone has for the great cataclysm, with the question of the national defense in America. The national defense must always be provided for. It is in the Preamble of the American Constitution which cannot be amended; so that, try hard as he may, the professional pacifist and the patriotic American must not lose sight of the fact that the American

Constitution directs that the national defense, being one of the foundations upon which the Constitution rests, be one of the things that Congress and the people *must* and always will provide for. This, despite the fact that the pacifist, in holding up the universal antipathy to war, is trying to confuse that antipathy with the constitutional duty of national defense.

The schemes of the pacifists are usually impractical because they disregard natural law and human nature. "The object of their philosophy is to bring peace by making all men virtuous, whereas our real problem is to keep the peace amongst men who are not always virtuous."[1] The dreamer who closes his mind to the painful facts of history and the lessons they convey, and promulgates visions of an utopian state resulting from a complete change in human nature, does not advance the cause of peace, but on the contrary distracts the minds of men from the true solution of our difficulties.

Before considering what the propagandist and the pacifist have in mind, it were best to trace to a slight degree the story of some of the wars that have been fought in the near and distant past. This cannot be properly done unless the reader places himself as nearly as he can in the period during which the wars written of were fought; realizing the condition of the people, and their rights and wrongs. In order to lay before the reader, so that he will fully understand all sides of the controversy which has led to the attempt to "outlaw" war (which the writer hopes might be possible, and fears it will not), it is best to take up a few of these wars, to see why they were fought, and what was accomplished through them.

Magna Charta, which the barons obtained from King John in 1215, has been both underrated and overrated. Prior to its promulgation, and for many hundreds of years before it was forced from King John, after bloody battles culminating at Runnymede, many of the people, both in England and on the Continent, were absolute and actual slaves. When an overlord attempted to sell a part of his freehold, it was very common in those days to put in the deed, after describing the freehold, that the landlord conveyed John, the Plowman; Peter, the Herder; Michael, the Horseman; and so forth; *with his wench and their brood.*

The great majority of people in England and on the Continent at that time sowed, but could not reap; toiled, but did not enjoy the benefit of their toil. That went to the overlord who owned the soil, and owned the lives and bodies of those who tilled the soil for him.

There were more than two hundred crimes punishable by death; in fact, the will of the overlord practically determined what was and what was not a crime, and what the punishment should be. There were torture, maiming, mutilation, and demembration; for the common person no proper unbiased trial by jury or otherwise. The overlord's right to Amobragium, the "Marcheta Mulierum" of the English, the "Amobyr" of the Welsh, the Continental "Droit de Seigneur" en-

[1] "The Maintenance of Peace," by S. C. Vestal.

forced the compulsory prostitution of woman, who was a chattel slave. There is still paid, in spots, in England, the Marchet tax, a farthing or a peppercorn, by the tenant to his overlord when a daughter of the tenant is to marry, as a grim reminder of the time when an overlord might be found in the morning with a knife in his heart, or an outraged maiden clubbed or choked to death by some monstrous nobleman who had found that there was virtue in a maid of lowly birth! There were "cruel, unusual and inhuman" punishments, with more penalties than one for the same offense. There was no law but the law of might; the people were looked upon as having no more rights than dogs, in fact fewer than dogs have today, with no protection from the lawless rule of might without mercy. What way could be found to reach the goal of equality and right? Could there be any way but the meeting of lawlessness and force by force?

When Magna Charta was forced from King John it did not apply to the common serf and villein, nor to those who were not of the nobility. It was a concession to the baron, the lord, the nobility. The king's will was supposed to be absolute. The barons forced him to acknowledge that they had some right, so that Magna Charta merely recognized the rights of the barons as against those of the king. Its greatest claim to our thanks was that it recognized rights hitherto denied, and that even a king's rights were not absolute, besides setting in motion a trend of thought that eventually brought rights to all.

Many lives were lost to establish that principle, that the barons, too, had rights. But no student of history will deny that with Magna Charta the human race had made a step forward.

For practically one hundred and sixty-five years after Magna Charta no steps were openly taken, or could be taken, by ordinary persons or slaves, to extend so as to apply to themselves the rights given to the barons. But there was a muttering, a discontent, for no one likes to live in slavery, to be unable to reap what he has sown; nor to be taxed, without being consulted as to why or how much. This in itself is akin to, and perhaps is, actual slavery. In fact any government that is not "for the people and by the people" is a form of slavery.

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The Black Death was sweeping over the whole world. In about 1366 farm labor had become very scarce in England because of the many deaths. So many of the laborers had died that a statute was passed, called the "Statute of Laborers," making the bondage of the land slave more explicit, and its hardship more severe.

Among the provisions of this statute, one stands out as glaringly unfair. It provided not only for the title of the overlord to the bodies of his slaves, but made a further provision that in case any of these slaves left the land to which he was bound, he was punished by personal castigation, torture or dismembration; and for a second offense, was punished by death. No one yet had become powerful enough, or courageous enough, to speak for the suffering, abandoned slave. No one had yet attempted

"To show by proof, in some wild hour
How much the wretched dare."

NOTE: On following page, second column, line 19 should read "edition of 1727" instead of 1927.

In about 1380 a dissenting minister who had been preaching that the slave and those not of the nobility had some rights, and that slavery was wrong, was joined by a leader courageous enough to risk his life.

This minister was John Ball, whose couplet,

"When Adam delved and Eve span,
Who was then the gentleman?"

then rang and now rings true as the foundation for the generic hatred of discrimination in behalf of the rights of one class as against those of another, by reason of birth alone. Added to the dissatisfaction caused by the Statute of Laborers were oppressive taxes levied without thought of fairness. That Wat Tyler, who was the military leader of this revolt, and some of his men have been always classed in history as traitors, is not to be wondered at, for

"Treason is never successful; what's the reason?
Because if it's successful, it's not called treason!"

This does not, however, deny the right of lovers of freedom to feel that Wat Tyler attempted to help the poor and friendless, though he himself did not live to see the results of a very noble effort. The foully indecent method of a tax collector in violating the person of a daughter of Tyler's to "ascertain her age," which the collector claimed as a right under the law (all persons fifteen years old or more being subject to a poll tax), drove a righteously indignant parent to murder, and led to a revolution which has since borne his noble name.

Tyler and some of his leaders were practically murdered by parasites of the king, probably by treachery. The revolt ended by the king making some concessions, which he afterwards repudiated as far as he could; but poll taxes were abolished, the Statute of Laborers was modified, and there was a general tendency to abolish villeinage. The Feudal System, where the lawless strong arm, the fully armed, tyrannized over the helpless unarmed hordes, had received its first great shock! It was at about this time—1377—too, that we find the English idlers at court planning for "perpetual, universal peace," which the chronicler says, even at this early date had already been found to be useless and impractical (from Rymer's Foedora, edition of 1927).

No one will deny, however, that after this revolt and war, in which many lives were lost, the people and the slaves had made a distinct step forward.

Things seemed quiescent for about seventy years, but under the surface the muttering and the brooding continued. The couplet of John Ball was being talked and sung, the leaven was at work, and men were asking sterner questions as to their rights.

This culminated again when the Men of Kent marched upon London, headed by Jack Cade, called the Notorious Jack Cade.

This was another revolt against oppression, improper and unfair taxation, and the right of the nobles to fatten on the poor, because of brute strength and the power to take—against the right of the king to farm out or give to his favorites the means to tax the people at the will of the favorites, without other law.

The people of the towns were back

of this rebellion. And although there was a battle in which Cade was repulsed, yet the king made concessions and granted pardon to the rebels. Cade advanced on London and lodged in the suburbs, where for several days he maintained the strictest discipline. On the third night there was some pillaging; perhaps this pillaging was done by the king's followers to throw discredit on Cade and his men. It was certainly not countenanced by Cade. At any rate, the people would not allow Cade to enter London; the promise of pardon caused many of Cade's men to desert; and Cade himself was killed by the Sheriff of Kent. But the people began to dream of the time when with a proper leader they could try again to shake off the feudal incubus, and the right that *might* made of the oppression of the many by the few. There was no law for the toiler, only the law of the strong arm. These laws, or this lack of laws, caused the oppression of the many by the few, because of that armed power, and were more real, more horrible, and more vicious, than war.

Things were less quiescent in England after that. Small groups of men were discussing as boldly as they could things which have since come to be recognized as inalienable rights, but which in those days it was treason even to dream, and surely treason to speak. Religions began to clash—the Presbyterian, the Brownist, the Ana-Baptist, the Catholic, and that which came to be called, after Henry VIII, the Church of England—all fermenting and fomenting. The unrest that was caused between different creeds and different sects began to be more strenuous and resulted in many clashes and in many deaths.

It is not the purpose of the writer to discuss these religious clashes, but merely to call attention to the fact that because of them other questions were mooted, disputed, and brought bloodshed. These were questions relating both to the people and the State, and questions as to the general rights of mankind.

The Feudal System, which was the system by which the owner of the land enslaved all of those who did not own land, was coming under scrutiny and suspicion. Men were asking openly why there should not be religious tolerance; why men should not have the right to reap what they had sown. The methods and reasons for levying taxes were breeding dissension. The different sects were striving each for mastery of the whole country.

The question of separating the Church and the State was being bruited, its first English enunciator being probably Robert Brown, a dissenting minister from whom the sect, the Brownists, was named. These matters led to discord, torture, bloodshed and lesser battles, all culminating in, although not causing, the levying of ship money without a Parliament by King Charles I, and resulting in the great English rebellion wherein the king lost his head, and Oliver Cromwell became Protector of England.

After King Charles was beheaded, a sect or party arose in the English rebel army called the Levellers, headed by one Lieut. Col. John Lilburne. He, the historians agree, was a most turbulent, courageous, yet absolutely upright and able man. He and his hordes preached a new doctrine, unheard of

and unknown in England: *"The equality of all before the law and the right of every man to worship his God in his own way."*

No one will question that many thousands of lives were lost in this great rebellion and sub-rebellion, and that much property damage was done. Nor will anyone question that when that war was over the human race had made another very great step forward. The ship money case established a great principle, but it was finally established only by the success of this revolution and not by a court decision. The principle was that "there can be no taxation without representation." If this were the only right that was brought about by the great rebellion, will anyone say that the world had not thus made still another great step forward?

The doctrines for which John Lilburne fought and suffered, among which were the equality of all before the law and religious tolerance, were not yet established, but a long step had been taken toward their recognition.

In 1688 another revolution broke out. At the bottom of this revolution were the doctrines for which the Levellers toiled and suffered and died—the equality of all before the law, and religious tolerance.

This revolution, beginning shortly before the new king went to the throne, resulted in many years of fighting, the renewal of the so-called Border Wars. Many thousands of lives were lost. But, through the efforts of John Locke, who remembered for what the Levellers had stood, and through the efforts of those great Englishmen who advised William and Mary, and who fought through the long years of the Border Wars, there resulted the inclusion in the English Constitution of the great Bill of Rights, guaranteeing equality of all before the law, and qualified religious tolerance.

This Bill of Rights also firmly established for all the right of trial by jury (which had heretofore been both farcical and tyrannical), without which there could be no equality; the right to petition; the right of free speech; and above all, the right to vote, qualifiedly, yet as a matter of right, for a Parliament at frequent intervals, so that the changing spirit, theories and needs of the people might be properly rejected or made into laws.

It is impossible to say how many hundreds of thousands of men and women died during this long warfare, but we do know that when it was over the human race had again made a great step forward.

But despite the fact that the people in England now recognized certain rights, they were not willing to concede those rights to their colonies—they claimed the right to tax the colonies without giving them representation, which, of course, was a denial of equality for all before the law.

The right to complete religious tolerance had not yet fully taken root in America, except in one place, or in England as far as the colonists and certain sects were concerned.

It is unnecessary here to write again the story of the American Revolution. That has been written by distinguished historians. From it came the American Constitution—the greatest charter of liberties in the world. It is the fundamental upon which all American rights rest, and has been copied and followed by many other nations. No

American has a right to dispute or deny any of the things contained in the American Constitution, nor has he a right to violate any of the things in that great charter, and still call himself an American.

Will the pacifist deny that when the American Revolution was over and the American Constitution adopted, the world had made another great step forward?

But the rights of Americans, as between America and England, were not wholly settled by the Revolutionary War. England, during another great war with France, asserted its right to take American seamen from American vessels, thereby denying the entire right of America to its nationalism. Over that question another war was fought. Many lives were lost, much property was destroyed. Yet after this war England realized that she had lost the right of impressment, and America was wholly and entirely a nation, free and independent of English rule or dictation. The world had made another great step forward.

But the Fathers, in framing the great American Constitution, had made one compromise which was indecently improper. Neither an individual nor a nation can compromise with sin and wrong. The question of slavery, argued by the great Fathers of the American Constitution, in 1787, was left unsettled, and slavery was recognized. Many questions in relation to slavery were left open. There were men in the Constitutional Convention who cautioned against such compromise; who knew that greater bloodshed would come if the right to own slaves, white or black, was kept in the Constitution. Because they had compromised and wrong was tolerated, another great war was fought. Just as Washington and his army and the great American Constitution struck the shackles forever from the white man, the Civil War and Abraham Lincoln struck the shackles of slavery from the black man. Who will say that emancipation was not another great step forward? And who will say that it could have been achieved at that time, except by recourse to war?

Then came another war, in which a tiny island country was struggling for its freedom from the tyranny and oppression of a greater country. This country actually sought to tax and despoil the small island, and allowed it no proper voice or representation.

During this revolution our great country was again drawn into a war which was a war for freedom, a war for humanity—and not a war for conquest. It was a righteous and justifiable war. As a result the rights of many thousand human beings were established, and incidentally many doctrines which are sacred to Americans were extended to many millions of people. When we forced Spain to make Cuba free, another great wrong of the centuries was righted, and the world had made another great advance on the road of progress.

Besides this, we struck the shackles from another people who had been enslaved by Spain. And those who know (including the inhabitants of the Philippines) have seen and are seeing a multitude of people receiving culture, education, rights, with their country transformed from a semi-savage state to the progressive, forward-moving, beautiful states that the Philippines are today.

As a little sidelight on war, and a proof that it is not always an unmitigated evil, let us remind the reader that the Spanish-American War led directly to the discovery of the cause of yellow fever, that ancient scourge of the Western Hemisphere. So as a result of this discovery, directly attributable to the war, yellow fever has been practically exterminated. Already this has saved more lives than were lost in the war. It made possible the construction of the Panama Canal —that "Greatest Work of Man." It stimulated similar campaigns of extermination against other diseases. Who will say that this great discovery was not worth to the human race many times the suffering and loss of life resulting from the war?

We have followed chiefly the progress up from slavery of the Anglo-Saxon race, who have always been the champions of human liberty. But similar movements were going on elsewhere in the world. France, restive under the exploitation and spoliation of the many by the few, also struck off her shackles and established the principle of "liberté, fraternité, égalité." We may hold no high opinion of the moral character of Napoleon but a study of his influence on the course of human history shows plainly enough that he was an instrument of God for the betterment of the human race. Regardless of his motives, he dealt savage, fatal blows to the pernicious theory of the "divine right of kings," and today that theory is rapidly disappearing from human affairs.

So, step by step, from the absolute villeinage and serfdom in which men, women, and children, white or black, were held in slavery and in bondage—in which men were not entitled to a religious belief or a conscience—in which property rights did not exist, and the sanctity of woman was disregarded—to the glorious rights of today when every man, woman and child has an equal opportunity and equality before the law, is progress that must have been designed by the Almighty Himself. And it only came to us in one possible way.

And how was it done? And what did it?

There is no question that in all these wars that were fought in seven hundred years, many lives, some wonderfully useful, were lost, much blood was shed, much property was destroyed. But for the millions of lives that were sacrificed in the wars of these seven hundred years, thousands of millions of men and women who have lived and will live have benefited, and posterity has been made free.

It is true that these wars were perhaps brutal things in their conduct. But so are sickness and suffering and hunger and envy and hatred brutal things; and the things that these wars outlawed, and outlawed is the proper word, were many times more brutal than the wars that outlawed them. We cannot outlaw suffering, envy, hatred, greed, hunger, and brutality, but we did outlaw compulsory "prostitution in woman, ignorance and hunger in the child, and slavery in man," and we have outlawed many dreadful diseases. And it was done because there were men and women of courage ready to live and to die for those things that were more sacred than life; it was done in the only way it could be done, by bloodshed and the travail which we call war.

Perhaps these wars were cruel and brutal, but life is cruel and brutal in many of its aspects. We must recognize the great fact that revolutions are but the "brutalities of progress," yet progress nevertheless; and that for every step forward that has been made by these great and holy wars fought for a noble and progressive purpose, for every step forward and for every life that has been lost in these wars, a million lives will benefit in the future because these wars were fought.

Do we desire, then, actually to outlaw that great instrument of progress which, *more than any other*, has contributed to the uplift of the race? Do we wish to deny to the human race the right to resort to war when progress cannot be achieved by pacific measures? Pacific measures are of course always to be preferred. But in the great scheme of the universe *force is the ultimate power*. Man owes his position in the world and his overlordship of creation to the intelligent and rightful use of force. And war, ruthless war if you will, in one form or another, has been his chief method of using force in his struggle up from darkness to light. Human government consists very largely in coercions and restraints by force or the threat of force. Force or might is not inherently wicked. When applied to achieve righteous ends it is a noble, even a holy, thing. It is only necessary for us to see that *might* is always on the side of *right*.

There is no question that some wars have been wars of aggression only. Yet many wars that we look on as wars of aggression, sowed the seeds of progress, spread culture, learning, the arts, and other benefits that led to better things; carried with the evil, the germ and seed that flowered in human freedom. Besides, many wars fought on the Continent were fought by the oppressed against the few with might; and gradually the power of the few was broken, the Feudal System disappeared, civic slavery died, because men and women were ready to fight against oppression and die for liberty and truth.

And in looking again at the old book before me (written almost two hundred years ago), that tells of peace that was to be eternal, perpetual and everlasting, and was broken many times; in thinking of the wars that were fought so that the human race might exist, might progress, might be free, might own that for which it toiled; I am asking the pacifist and the professional propagandist which of the wars I have described he would outlaw if he could? Which of these wars were more grim and horrible than the things that they corrected? And which of the great progressive patriotic leaders of these great wars would they declare outlaws, when they outlaw the specific wars? Would they declare the barons at Runnymede, John Ball, Cromwell, Lilburne, William III, Washington and his supermen, Madison, Perry, Lincoln, Grant, Farragut, Porter, McKinley, Roosevelt, Dewey, Wilson, Pershing, and the vast armies of patriots who fought for them, outlaws and leaders of outlaws? And under which system would they prefer to live: that of villeinage, of serfdom, of rule by the few over the many without representation; or that of the constitutions of today, and the rule of law?

I am thinking, too, once more, of the great American Constitution that came

into effect and was finally molded because of all of these wars; and I wonder how the rights obtained under the Constitution could have been obtained without these wars. I am asking those men who would outlaw war, Is the world so perfect, are rights so settled, are laws so just, that we can say that all further progress is impossible and unnecessary, and that rights can be always obtained, even though war be outlawed forever? And I am telling them that the proper way to outlaw war is to outlaw the causes of war, to outlaw human greed, human passion, human hatred, human envy, nationalism, racial and religious strife; and that when that is done we are outlawing humanity and all that humanity stands for. For these things have always been and always will be. Life itself is aggression, evolution, travail and combat; and each individual is struggling for betterment, just as nations must. And the rights of nations can never be eternally harmonized, nor can or will human desire and human reason always control passion and envy, hatred, sectarianism, nationalism, human differences, and human greed.

May we, who appreciate that we have risen from degradation, not be allowed to show our thanks that there was a way given to abolish the blackness of the early years? Must we, because we are thankful to God who led us "out of the house of bondage," pause to apologize to the professional pacifist and propagandist and those others who have seized the fruits of sacrifice and travail, while yet they revile the means by which those fruits were earned?

In Hannibal's Day and Ours

IN the Tsingyuan district of China, not many miles north of Canton, a new-old military stratagem was practiced.

The "Ironsides" men used water buffaloes to penetrate a carefully prepared position with small losses to any but the buffaloes. The attackers goaded a large drove of these dumb animals into motion over the first defenses—a mine field. The animals that did not become sacrifices to the need for clearing away this obstacle lumbered on into the barbed and live-wire entanglements and ripped them up as if they had been so many paper ribbons. Close behind this "advance guard" came the attack proper, and it won its objective.

The Philosophy of a Soldier

LIEUT. R. W. MARSHALL, Late U. S. M. C.

HERE are set down, by an officer in the ranks, his observations based on front line service in the World War. The point of view is that of one individual and may be prejudiced—certainly some of the opinions are open to controversy. But these opinions are based on actual experience, with ten years in which to formulate them.

The qualities that made a good soldier in the World War are the same that have distinguished the first class fighting man in every war that was ever fought. And they are so fundamental that, whatever may be the developments in warfare, these same qualities will always stand out.

A good soldier must be able to take punishment and keep going. Unless the individual infantryman can keep going under difficulties little appreciated by those not familiar with them, he will never even reach the front line, much less be able to do any good after he gets there. Forced marches precede nearly every engagement. The usual procedure in France was to rush a division as near to the lines as possible in trucks, and then make it hike the rest of the way at night and attack at daybreak. It takes a good outfit to stay together on those heartbreaking night marches and daybreak attacks.

Soissons was a good example. Just out of Belleau Wood and still in reserve on that front, we were lying in the little town of Nanteuil, along the Marne River. We were confident in our inexperience—Belleau Wood had been our first big fight—that the next move would be to some rest area well back of the lines. We knew we rated a rest and therefore foolishly thought that we would get it. Instead, without any clear idea of what was happening, we were loaded into trucks and were off for an unknown destination. Had we been as wise in the ways of war as we became with repeated experience, we should have known that there was trouble in the wind. Whenever the infantry rides there is urgent need of it somewhere, and we later came to look on trucks as a sure sign of trouble. They surely meant trouble this time, for they headed straight for Soissons. Starting at 11:00 p. m., we rode all night and until noon the next day. It was in the middle of July and the heat was terrific. White clouds of dust hung over the countryside as the long column of trucks pounded along the roads of France. The white dust greyed the uniforms, and the faces of the men were like those of ghosts. I remember how a gulp of sour *vin rouge* from the canteen of the middle-aged French driver of our truck, cut through the dust and refreshed me as the water in my own canteen could never have done.

Tired and cramped, we were dumped into the edge of the Forêt-de-Retz and ordered to proceed on foot. The roads through this forest were badly congested with infantry, artillery, tanks, and French cavalry, all struggling forward to get into position for the big surprise attack that we learned was to take place in the morning. All that afternoon we staggered along under

heavy marching order until, near midnight and in a violent rain and thunderstorm, we reached a point in the strange black woods which we guessed was the position that we were to take up. There we flopped for the night, ready to go over at daybreak.

It had been a hard twenty-four hours, full of punishment; but we had kept together and going; and that, in my opinion, is the first test of a soldier.

The enviable record of the 2d Division was due largely to the winter of hard training which it had in France before going to the front. Long practice marches along the frozen, snow-covered roads toughened us up. It was nothing unusual for reveille to sound at anytime after midnight and for us to start long before daybreak on a hike that would bring us back at nightfall with our full packs dragging. This winter of 1917-18 in France was harder than the actual fighting that followed, but the finest kind of preparation for it. The toughening was of immeasurable value.

A tour of duty in the trenches before the harder fighting of open warfare was also a big advantage to the older divisions. There we were broken in gradually. There we got our baptism of machine gun and artillery fire, a good taste of gas, and an idea of what it was all about. Moreover, we had an opportunity to try out our men, and so learned on whom we could depend. What the lack of these opportunities meant is illustrated in the case of a division that relieved us in the midst of a hard fight a month before the Armistice. This division was a fine-looking outfit and no doubt might have made a name for itself in time. But it had scarcely gotten rid of its sea legs before it was rushed up to our front and thrown into one of the toughest spots in the war. We had attacked every morning and every night for six days, and this outfit was to take up the fight where we left off—the orders were for us to stay in place and act as support for the new division which was to push ahead. Two things happened. By the time that the new units had marched up to the line of fox holes that we were holding the men were so worn out and disorganized that they were useless for twenty-four hours. They hadn't been toughened. And when they did attack, their lines of communication failed and at least one battalion commander was completely out of touch with his companies. He had made the mistake of making runners out of all his misfits; men that his company commanders hadn't wanted he had taken as runners. A tour of duty in a quiet sector would have taught him that the last place he should have put these men was as runners. The best men are not wasted on that job.

The same ability to keep going was as important in individuals as in organizations. Ask any officer who after a long, perhaps all night, march, or after days and nights of fighting on a tough front, had to look around for a man to send on some difficult important mission or assign to some detail that meant still further hiking or fighting. Then is when he welcomed and appreciated the man who had not passed out in a ditch along the road or sought the bottom of some dugout where he would be hard to locate, but who was still on his feet or able to go. And these men, in my experience, were not usually the six footers who

marched in the first squad. They were the little terriers like Eddie Venn of Detroit, killed in front of Bouresches, who didn't weigh more than one hundred and twenty-five pounds, but who would come in from the toughest hike with the tail of his pack literally dragging the ground, and with a war whoop would give it a fling up onto his top bunk and sing out "——— 'em, they can't get my goat." Or like Hank Springer, now making cigars at Mineral Point, Wisconsin, who always had enough "pep" left after the longest hike to challenge his platoon to a foot race—and win it. And sometimes they were men like Elliott, thin and tough as a rail fence, who fought through Belleau Wood, Soissons, St. Mihiel, and Champagne, and made all the long, hard hikes and suffered all the hardships that went with these fights, while he lived on rations that he couldn't chew. He would only have had to show his toothless face to the hardest medical officer in France to have been sent back to the clean sheets, the square meals, and the soft jobs of a base hospital for the rest of the war. It was men like these, with the physical stamina to be always ready for whatever might come next, who were appreciated by the lucky officers who worked with them.

One of the qualities that made Maj. B. W. Sibley one of the best battalion commanders in France despite his half-pint size, was his toughness. After a hard tour on the line, when many battalion commanders were "corking off" in some dugout, dead to the world, Sibley was out tramping around seeing if he couldn't find a cleaner woods in which to billet his men or some place along the Marne where he could take them for a swim. He could stand the gaff.

The ranks in the World War were full of brave men. Gas-house gangs produced just as many heroes as did exclusive preparatory schools—and no more. A school teacher before the war myself, I would be pleased to be able to prove that there was something that a boy acquired in my kind of a school which gave him more idealism than did those who could attend only the more practical school of experience. But my conclusion is that the dime novel ranks with what we call our best literature when the results are counted—and by results I mean willingness to stand the gaff or to lay down your life for your country.

What kind of men make the best soldiers? Certainly young men. As the United States forces go, boys fought and won the World War. Boys out of which the war made men. It is the boys of from seventeen to twenty-one who love the bright face of danger. Without responsibility, careless of consequences, war to them is an adventure, to men it is a duty. But as a boy becomes a man of thirty-five he acquires more sense. Put the man of today back in the shoes of the boy he was ten years ago and you would see the difference. The weight of years makes him more careful. He has now advanced to the brave but careful stage. Of course, he has more to live for. He is married, and that is fatal. I believe with Kipling that married men make better nurses but poorer soldiers. It is next to impossible to forget that little circle at home waiting for you and depending on you—you can't shake your head and shake that picture from your mind. It gives

you an alibi for being careful, of which there are always so many.

It was my observation that the men who were the most religious made the poorest soldiers. I am talking about the men who confessed their religion to their comrades and in their letters home. Of course, there may have been others who were deeply religious and were never suspected. The men who claimed to trust God the most seemed really to trust Him least and put their real trust in the depth of their dugouts. I recall one man whose mail I had to censor, who wrote regular letters to be read before the Sunday school of which he had been superintendent. He always ended his letters by saying that he was sure he would get back to them because he had put his trust in God and because He would look out for him. But he took no chances—he always looked out for himself very well. The bravest and best men I knew had a joke and not a prayer on their lips when they went up to the line.

The boys who were inclined to be religious usually were pessimists, with heads full of solemn thoughts, and made very poor company. If there was ever a place where pessimism is unwelcome it is when you are in a tough place. There the man who can get a laugh is worth his weight in gold. Usually the situation is so desperate that you want to forget it, and you do not appreciate having its seriousness brought to your attention. If you were a thousand miles from home, waiting up on the line until it got dark enough to lead a patrol over behind the enemy's lines, and if it took a long time to get dark, as it always did, and you had nothing to do but wait—and wonder—would you need a pessimist?

The line between a brave man and a fool is so fine as to be often indistinguishable. At one stage of the fighting on the Champagne sector, just before St. Etienne, the front lines were less than one hundred feet apart, so that every move or sound within our lines brought a volley of rifle and machine gun fire from the enemy. A man could scarcely turn over in his fox hole without drawing fire, and it was impossible to distribute any food even under cover of darkness. But a lad out of the 97th Company, 6th Marines—I have often wondered who he was—must have found time heavy on his hands. He had gotten hold of a long strip of plug chewing tobacco and he proceeded to distribute it among the men of his company. I can see him to this day, standing with just a tree trunk between him and the enemy. He would cut off a ration of chewing and toss it into the nearest fox hole, then wait for a lull in the firing before making for the next tree from which he could reach more of the holes. Every break that he made would bring plenty of attention from the enemy, but he seemed to enjoy it. Ten years afterward that incident still seems to me to equal anything in foolhardiness that I saw during the war. And who will say that that boy was not brave.

I recall taking some chances myself which were uncalled for and could be justified only for the effect they might have had on the men who were with me. That I didn't always impress them was evident when one of them in a moment of frankness at a recent reunion said to me, "Boy, I never knew and I don't know now whether you

were brave or just a —— damn fool." And he has me guessing, too.

Carelessness and bravery are often close together. In my opinion we all became less brave, or at least more careful, with each succeeding fight. At first we didn't expect to come back—it looked too nearly impossible. But as the summer wore on, what was left of the old outfit began to be a little more careful. Perhaps there was some chance after all, and perhaps if we used our heads we could worry through and be there at the end. Men and officers, we were learning how to fight, just as the French had learned before us. Men were more careful of themselves and officers were more careful of their men. We both saw that the war wasn't to be won in one charge, and that it wasn't any disgrace to call for help from the artillery instead of trying always to take a position barehanded.

And so to the question, "What kind of men make the best soldiers?" my answer is, "Boys, trained to stand the gaff of warfare, and who are careless about tomorrow."

A Fitting Introduction

IN introducing General Summerall at the Women's Patriotic Conference on National Defense at the D. A. R. Hall, January 30, 1930, the Secretary of War, Honorable Patrick J. Hurley, said:

Your President has just placed upon me the unexpected, yet very pleasant, duty of introducing the next speaker on this program.

The United States Army has developed many great leaders. Some of them have won their fame as administrative officers, men whose power in administrative affairs of the Army have outshone all of their other qualifications. The Army has produced others whose great strength lay in their ability to lead troops and command them in battle, and have won their fame as soldiers. Occasionally the Army produces an officer who combines the qualities of great administrative ability and distinguished combat leadership. I have the honor this morning to present to you a man who is wise in council, able and direct as an administrator, and is at the same time one of the boldest and most brilliant combat leaders the Army has produced—The Chief of Staff of the United States Army, General Summerall.

Getting Rid of the Line

A forceful argument for reconciling drill and tactical formations

CAPTAIN X

WE start with history.

Published in London in 1686, *An Abridgement of the English Military Discipline* gives details of drill movements. It says that "all companies and bodies of men are to draw up at first in the same order they march at, both in rank and file." Battle formation is secured by opening the six ranks to twelve-pace distances, by taking intervals of three paces between files. There are complicated details concerning the facing of musketeers and pikemen, and the placing of sergeants, drummers, and hautboys. But the idea is simple. Each file is headed by its file-leader (corresponding to our corporal) and the basic principle is that there is no violent change from column to line when adopting battle order. The men march as they form, and fight as they march, except that they are then at greater intervals and distances.

This was the principle of Gustavus Adolphus too. As each rank finished its volley, the men ran back to the rear, re-formed and prepared to fire again. As time went on, and less reloading became a quicker operation, the number of ranks was diminished. During the American Civil War, we had double ranks. The Krag magazine rifle permitted the single rank of 1898. In 1911, we formed "as skirmishers" with a frontage of one man per yard. In 1917 we learned to take five yards per man. And then the World War taught us, with its artillery and machine gun fire, that we should think less of lines and more of groups. The squad column came into its own again.

Right down to the days of the World War, we fought as we formed —in line. Now we go out on the parade ground, form in line, and then march off to battle where we use squad columns and groups. Our method of fighting has totally changed, but tradition makes us cling to close-order drill formations that bear no relation at all to our fighting method.

Let it be granted that parade in line looks well. Let it be granted that close-order drill has disciplinary values. But let us also consider whether athletic drills or calisthenic exercises might not be used so as to secure the same disciplinary values. And let us also consider whether we could not pass in review in massed columns—as we did it ten years ago—and whether it is not worth while to get the idea of a line out of our heads as much as possible, and in as many places as possible.

A company stands reveille in line. It falls in in line. It is inspected in line. Our single-platoon companies of today are the same old lines of yore. And then we have an hour or so of "extended-order drill" and try to forget the line. We worry from flank to flank trying to get privates and corporals to get flexibility, to use available adjacent cover, irrespective of exact intervals and alignments. Is it any wonder that we cannot, when we have our soldiers practically always shoulder to shoulder?

In January, 1928, in the INFANTRY

JOURNAL, there were presented some "New British Infantry Views" which pointed out that the British had eliminated from their Field Service Regulations and their Infantry Training pamphlet even such ideas as "defensive line," speaking instead of "foremost defended localities." Our American habit is still to talk of line of observation, main line of resistance, support line, reserve line, and so on, all nicely bent around the contours which mark the military crests or reverse slopes of high ground. We have to get away from the line idea. It is true that the training regulations on combat principles tell of approach marches in section or squad columns, tell of strong points and centers of resistance and all-around defense. But officers who have learned from these books, and men who have been taught from them, have gone to maneuvers and taken up defensive positions that had no gap from end to end of the regimental front, that made a defensive formation like the letter T—a command post in rear and all the troops strung nicely out across the top of the T, facing the enemy. A very capable young captain graduated from Benning in June, and in September he made an attack on a house by sweeping his outfit at even intervals and with straight front across an open field, when there was nearby brush and cover through which he could have approached on a flank to a point within assaulting distance.

The only way to get rid of the line idea is to get rid of the line.

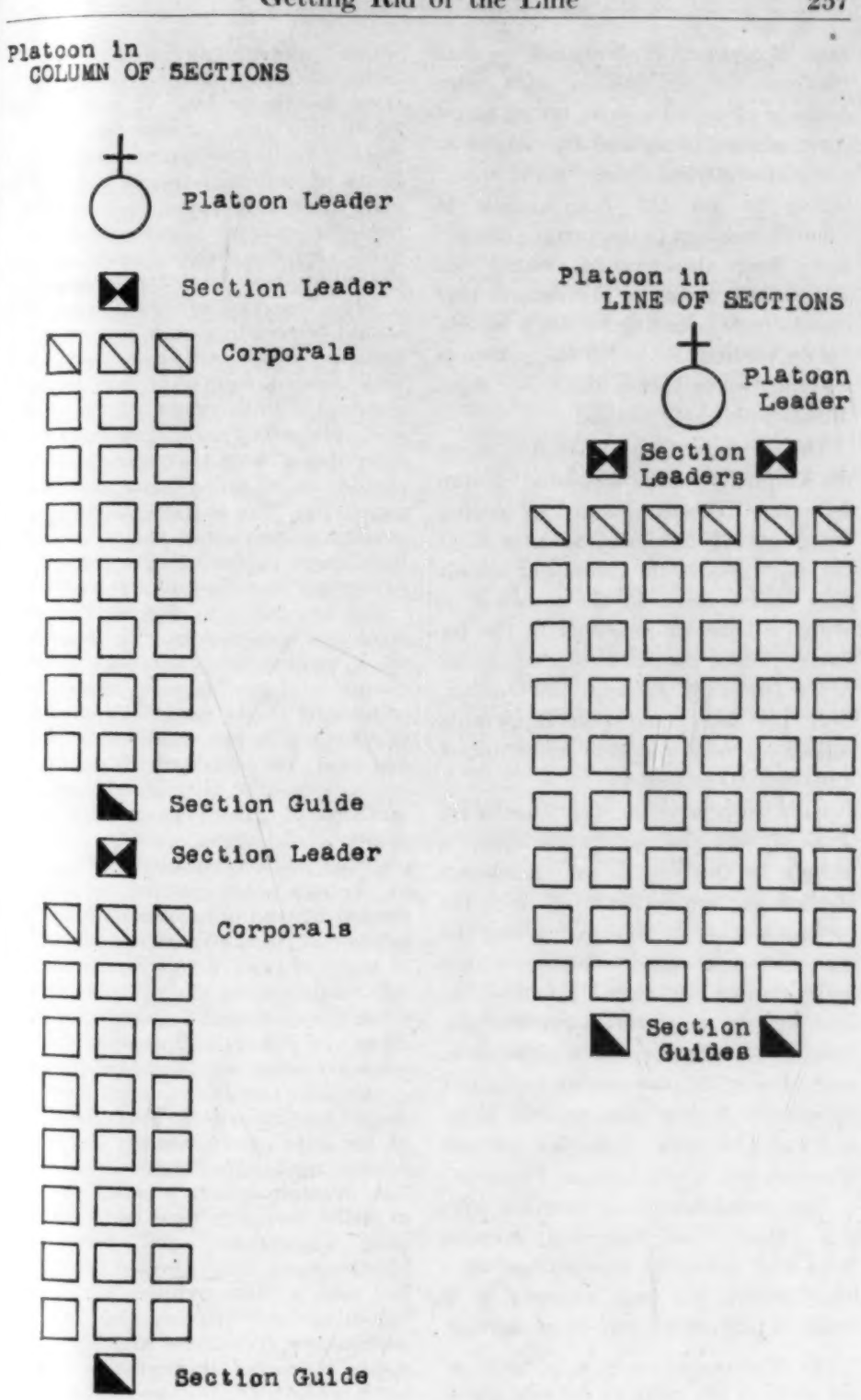
The double rank of close-order drill is useless in battle. It causes countless "changes" in drill regulations, endless argument over details, and serves no useful purpose. It should be relegated to the scrap heap and supplanted by something of value from a maneuvering standpoint, something that is more in conformity with the simple idea that men should form and march and fight in one fashion.

These are strong words. Perhaps they will arouse discussion and bring out suggestions. The subject is under consideration by many older army minds than mine, and the Doughboy readers of the JOURNAL may well be thinking about this thing and perhaps preparing themselves to contribute to the next step in infantry thought.

Here is a tentative scheme.

Let a squad fall in in column, in a single file, headed by its corporal. Let the section fall in with the three corporals abreast, each heading the file of his squad. Let the platoon fall in with its six corporals abreast, each heading his squad file. Let them form this way, and march this way—and when they move off to fight, the squad columns are already formed, and the section columns too. The ranks may dress. But if they form this way, and march this way there is no violent change of concept. The corporals in the sections are abreast already. The men are following their corporals more easily. The whole mechanics of deployment will be far simpler. The platoon can go directly into squad columns from road formation, or separate into section columns from the same formation, with ease and smoothness.

We have gotten rid of having corporals march their squads out to positions as skirmishers, keeping them nicely in double rank all of the time. We have gotten rid of deployment from the double-rank platoon front. We still have to get rid of the double


Platoon in
COLUMN OF SECTIONS
Platoon Leader
Section Leader
Corporals
Section Guide
Section Leader
Corporals
Section Guide
Platoon in
LINE OF SECTIONS
Platoon
Leader
Section
Leaders
Section
Guides

rank altogether. If we do not we shall continue forever fiddling with intricacies of close-order drill, trying to get three straight lines and two angles in our platoons when doing "right turn," trying to get the rear squads to "march right up to the turning point" and "keep those ranks dressed" in column left, trying to prevent our rear squads from jamming up when marching in columns in which every man is not the twelve inches thick our regulations so blithely assume.

The accompanying illustration shows the simplicity of the suggested column formation. It will be noted in passing that this road formation obviates all of the objections to the column of squads as a march order in the presence of aerial attacks, as indicated in the Infantry School document that appeared in the INFANTRY JOURNAL for October, 1927 (p. 375), and that it permits squads to take roadside cover intact and with their leaders.

Mere inspection of the illustration will indicate the ease with which a column of threes (platoon in column of sections) can be deployed, with the leading section as skirmishers and the rear section in squad columns, or with both sections in squad columns, or both sections as skirmishers. The platoon is already divided into sections, each under its own leader—and this cannot be said of the present close-order double-rank formation of our platoons.

This formation is not original with the writer. The following extracts from the approved proceedings of a board which has been engaged on a study of this matter may be of interest.

(1) The present system of close-order drill is not adapted to war plans, which contemplate preparing raw levies of troops for active service in three months or less. It is so complicated that the attainment of proficiency in its mechanics entails many hours of training; time which can be more profitably spent in other training—for example, pure disciplinary drill, marksmanship, scouting and patrolling, and combat principles.

(2) Close and extended-order drill should be coordinated. Close-order formations which are not coordinated with combat formations are basically unsound. Deployment of the section and platoon from close-order into their usual extended-order formations should be attended with the utmost simplicity. This is particularly true at present on account of the necessity for high speed in deploying a column for protection from hostile airplanes.

(3) In order to facilitate deployment and also to permit the formation of a column of sixes instead of a column of fours, on wide roads, and a column of threes instead of a column of twos on narrow roads—thus reducing road space without disrupting organizations—the basic close-order formations of the platoon should be column of sixes (double section column) and column of threes (column of sections, each section in line of threes) instead of column of fours and column of twos. There are thousands of miles of road in this country which will readily accommodate a column of sixes (very few will accommodate a column of eights) and many additional miles are being constructed every year.

(4) All double-rank formations should be eliminated. They are a relic of the days when infantry fought in double rank. They have no application in campaign at present. Outside of drill, they are used only for roll calls, inspections, and ceremonies. Furthermore, they develop in officers and men, a "line complex."

It is not only uneconomical to teach double-rank formations and the movements connected therewith to troops, but it is also poor practice in that it de-

velops a tendency to stress *alignment* rather than *direction*.

The elimination of double-rank formations will be attended with no inconvenience. Line of sections without intervals can be used for roll calls and inspections and columns of nines—much more impressive than column of platoons—can be used for passing in review at ceremonies.

Elimination of double-rank formation will obviate the necessity for breaking up a squad when its strength is reduced below six. This would be a decided advantage in the organization of peace-strength units and in reorganization on the battlefield. For example, assuming that the minimum strength of a squad is fixed at three, a section could retain its three-squad organization until its strength is reduced below ten, and a platoon could retain its two section organization until its strength is reduced below twenty-one.

(5) The present system of close-order drill practically ignores the fact that the section is a tactical organization. As a consequence section leaders do not get the practice in exercising command which should obtain. This deficiency should be corrected.

. . . A revision of close-order drill (should) be undertaken without delay and . . . this revision (should) be based on the following:

(a) Co-ordination of close-order drill with extended order drill.

(b) Restriction of the squad to a single close-order formation, viz., squad column (column of files); the section to two close-order formations, viz., line of squad columns without interval, and column of squad columns; the platoon to three close-order formations, viz., line of sections without interval, column of sections with each section in line of squad columns without intervals, and column of squad columns.

(c) Elimination of all double-rank formations and the movements connected therewith.

(d) Inclusion of the section leader in the chain of command.

Before we throw up our hands in horror and say that the old double-rank, eight-man formation of the infantry squad should be retained forever and ever, amen, it is worth considering whether we have not made too much of a fetish of it. Among other things, a squad is a combat unit. It has its auto-rifle and its rifles, its scouts and its rifle grenadier. How many? How was the number determined? There is room for a slinking suspicion that the armament of, and the distribution of, weapons in the infantry squad were governed more by the necessity of giving weapons to a set number of eight men in double rank, than by tactical considerations of group fighting and the relative firepower and ammunition carrying capabilities demanded by possible circumstances. There is room for suspicion that the double-rank, eight-man squad has hindered our deployment, warped our minds, wasted our time, and crippled our tactical progress. If this is at all true, we should get rid of that squad along with all other evidences of what Colonel Fuller calls monastic dogmas of the military mind.

The Training of the Infantry Team[1]

Squad Training

CAPT. JOSEPH L. TUPPER, 24th Infantry
and
1ST LIEUT. JOSEPH I. GREENE, 24th Infantry

IN the second article of this series on the training of the 1929 Infantry Team, the authors described the high points of individual training—aiming, positions, trigger squeeze, and bolt action. Although basic training is just as important in developing a match team as it is in the training of any other group, its application is largely in the nature of refresher work to a national match squad. Consequently, exclusive work on the elements of shooting lasted for only a week. It was carried on chiefly through squad lectures and demonstrations, followed by individual practice in pairs under the strict supervision of the head coaches. During the entire remainder of the training period, however, the coaches required members of the squad to revert to individual work whenever their scores slumped.

WORK HIGHLY ORGANIZED

After the first week the work of the squad became highly organized. Dry work occupied the morning, and range training the afternoon.

The schedule of a typical day's work was:

Morning:
Lecture—10 minutes
Standing work—20 minutes
Sitting work—20 minutes
Rest—10 minutes
Breathing drill (sitting position)—10 minutes
Rapid fire drill (sitting position)—20 minutes (this included cadence drill)
Prone work—20 minutes
Breathing drill (prone position)—10 minutes
Rest—10 minutes
Rapid fire drill (prone)—20 minutes (this included cadence drill)
Physical drill—20 minutes

Afternoon:
Parade ground work along the same lines; range work according to ranges to be fired, ammunition allowances, and targets available.

As long as the squad remained at Fort Benning (three months), the morning schedule remained substantially the same.

The morning period was by no means excessively long or arduous. It seldom lasted more than three hours, and often a little less, but the work was intense and thorough.

The afternoon training varied, of course, as the work progressed from slow to rapid fire and from range to range.

In the paragraphs that follow we shall bring out the more important and novel aspects of the daily dry work instruction. The importance attributed to small points and the continued effort to make the correct movements of firing habitual and all but mechanical, the reader will find especially evident.

[1] The third article of a series that began in the INFANTRY JOURNAL for January, 1930.

STANDING DRILL

In the typical schedule the first period of twenty minutes was devoted to standing work. This drill included ten minutes of aiming and squeezing by each member of a pair. As in all such work the coaching member, under the supervision of the team coaches, observed every movement of the pupil member in order to eliminate incorrect and unnecessary motions. The pupil first received instruction in taking position and placing his stool so that the only movements other than those of actual firing were those of sitting and rising, without even changing the position of his feet. As soon as the firer got his shot away, he sat, unloaded his piece, prepared for the next shot, and as the target came into place again, he loaded and stood to fire. It is important for the firer to take advantage of and to use every second of time, because of the one minute time limit on slow fire shots in the National Matches. But during the first few weeks of training the coaches did not stress this point.

SITTING DRILL

There is no slow fire sitting range in the National Match course. Slow fire sitting work is necessary, however, to perfect the form of a firer. The careful attempt to get rid of false motions is quite as necessary in this position as it is in standing, or prone, if not more so.

In this work, the firer was taught to select a position on the firing line, sit down, place his feet, mark the resting points of his buttocks and heels, and then to stand. After this the pupil practiced dropping into position upon signal, until he was able to assume his sitting position easily, accurately, and without loss of time. In no way did the coaches force this work. If, in an individual case, the speed required too strenuous an effort, the pace was slowed down. Eventually the time of getting into position was cut down until it was considerably below the normal time allowance in the rapid fire cadence drill which came later.

PRONE

In the National Matches, the prone position is the only one from which both slow and rapid fire is done. If anything, the need for correct position and the elimination of waste movement is more desirable here than in the other positions. Once a man begins his score, he should in no way move out of or change his position during the firing of a slow or rapid fire score. The Infantry Team squad members were taught to take the same position in both kinds of fire. As the position of the left elbow, in relation to the rest of the body and the rifle, is the key to the prone position, particularly in rapid fire, the firer first of all picks out a spot for this elbow.

As described in the last article,[2] the prone position taught was the so-called "high position," in which the chest is raised free from the ground. That this is an excellent position is borne out by the facts. The Infantry Team used this position in 1925, 1927, and 1929, and in each of these years led the field in prone slow fire at one thousand yards. In 1927 and 1929 especially the Infantry Team far excelled the others at this range, and as a result, won the big match.

In assuming the prone position for rapid fire, the firer is taught to mark

[2] INFANTRY JOURNAL for February, 1930, p. 154.

upon the ground five points; the resting points of both elbows and of the toes of both feet, and also the point where the rifle butt would touch the ground if so rested after the position has been assumed. The firer stands with his toes on the marks that he has made for them, his left hand grasps the rifle just below the lower band and his right grasps the top of the stock close to the butt plate, thumb inside and fingers outside. When the target appears he drops to his knees. Then, turning his heels inward, he allows the upright part of his body to fall forward. In succession, he places the butt of the rifle on its mark, plants his left elbow in its proper place, shifts the palm of his right hand over the heel of the butt to the butt itself, and forces the rifle into the firing position on the shoulder. This done, he moves his right hand to the proper trigger position and begins firing. This method is as fast and smooth as any other, and is easy to teach and learn. It is an advantage in obtaining a correct position to be able to place the left elbow on the ground first. The last two or three movements of this method are just the same as the concluding movements in resuming the firing position after reloading the second clip. This sameness of movement helps to keep the shot groups of both clips centered in the same spot on the target, because the "feel" of commencing fire is the same for both clips.

BREATHING DRILL

Since correct breathing is hardly possible of separation from other training divisions, breathing drill was dovetailed between position drill and rapid fire drill. The method of breathing used was described in full in the first of these articles.[3] In the drill, the coach uses a whistle as a signal for blowing out the breath and gulping in a new one. At first the firer neither worked his bolt nor squeezed his trigger, but concentrated his attention on the breathing alone. As soon as the required manner of taking breath was habitual, the drill was used only occasionally to make sure that no one had acquired faults of breathing.

SLOW FIRE CADENCE DRILL

The cadence of slow fire placed a time limit upon the dispatching of each shot, thus training the firer to shoot uniformly and decisively. The coach measured by stop watch the time of each shot, beginning when the firer ceased breathing and ending when he fired the shot. A large number of observations showed that the average shot at the two hundred-yard off-hand position was fired in six seconds; at the six hundred-yard prone, in four seconds; and at the one thousand-yard prone, in five seconds. Shots made in these or briefer periods of time were found to be more accurate on the average than were those that took longer. The coaches further observed that more than half of the firers who held beyond the time limits came down without firing and tried again. In some cases the struggle lasted for twenty seconds before the firer gave up. Such gun wrestling not only is a waste of time but also a waste of something more important—firing energy. That the firer has a greater desire to shoulder or jerk the shot after these time limits expire is the chief way in

[3] INFANTRY JOURNAL for January, 1930, pp. 35-36.

which this nervous pressure manifests itself.

The training method used was simple. The coach started his watch when the firer began to hold his breath. If the shot had not been dispatched at the end of the time limit for the range being fired, the coach then cautioned in an ordinary tone of voice: "Take her down and rest awhile." Sharp commands were avoided to prevent the firer's setting off his shot by accident.

The aim of this work was, of course, to form the habit of quick, decisive shooting. Within reason, this way of firing gives results. In its application there is always a slight danger of exaggeration. Too much speed of execution is almost as bad as too little.

RAPID FIRE CADENCE DRILL

In rapid fire cadence drill the question of cadence is, in a measure, a simpler one. As rapid fire has a time limit set, it remains but to divide this time so that a reasonable period is allowed for each distinct movement of rapid fire, at the same time preserving cadence as far as possible. After much study of the subject, a method of control was evolved. Following the prescribed command for rapid fire, a whistle was blown at the divisions of the whole firing period. The coaches cautioned the firers that the whistle blasts were not to indicate the exact instant for firing the shot but rather to be taken as a warning that a period of time had elapsed and as a general guide for the firing of the whole string. In this drill it was found that most men were inclined to cut short the time for the first shot. In actual firing they took much longer for this shot. There was also a tendency to shorten the reloading time in the drill. By the use of stop watch and whistle the firers were easily taught the correct cadence for every rapid fire range.

The divisions used for the several ranges are shown below.[1]

In this drill, the watch was pressed as soon as the first target appeared, and not when all targets were in place.

CLIP DRILL

A common bugbear of range firing, and an even more common one of combat firing, is the breaking and jamming of clips. In rapid fire range work the fear of a broken clip inevitably worries the firer. This mental hazard also causes him to use more time for reloading his piece than he can well spare. Even with the experienced and able personnel that, in general, forms a National Match squad, this minor though sometimes tragic curse of rapid fire was present. The coaches decided that a drill to overcome this fear was very necessary. They first tried reclipped range dummies but found that the "feel" of such ammunition was not the same as that of a new clip. The need for the "feel" of the new clip could only be satisfied by using such clips; consequently, the ammuni-

[1]

Rapid Fire Range		*Shot No.* 1	2	3	4	5	6	7	8	9	10	*Secs. to spare*
200 yds.	Time allowed	9	4½	4½	4½	4½	11	4½	4½	4½	4½	8
	Total Stop-watch reading	9	13½	18	22½	27	38	42½	47	51½	56	62
300 yds.	Time allowed	11	5	5	5	5	14	5	5	5	5	6
	Total Stop-watch reading	11	16	21	26	31	45	50	55	60	65	72

tion that later was used for slow fire range firing was used first for rapid fire clip drill.

The sequence of this drill is as follows: The firer prepares to take a rapid fire position, with his rifle cocked and the cut-off turned "On." At the command, "Ready," he takes the correct firing position except that he does not look through the sights. The coach then blows a whistle, at which the shooter drops his head to aim, aims, and snaps the trigger of his piece, takes the rifle down, recharges the magazine, loads, and resumes the firing position. The time limit set for this drill was the same as that required for reloading in the cadence drill as above outlined. As live ammunition was used, this work had to be done on the target range, where it was made a preliminary exercise to whatever firing was scheduled for the day.

The benefits from this clip drill were unmistakable when the match firing itself was reached. In the firing of the whole Infantry Team there were *no* clips broken.

LONG RANGE AIMING EXERCISES

Early in the training of the Infantry Team squad the need for a satisfactory means of conducting long range (one thousand yards) aiming exercises was evident. The two hundred-yard triangulation work had taught the shooters to aim properly, as their small shot groups at this distance showed. But the results which they obtained in their first thousand-yard range work were far from satisfactory. The squad members attributed these poor results to several causes, the most commonly expressed of which was poor eyesight. The team captain and coaches decided that if some way of making long range shot groups could be evolved, the real reason for the poor work at one thousand yards could be brought to light. They also believed that poor eyesight had little or nothing to do with the matter and felt that a long range aiming device would blast any such belief.

THE MACHINE REST

The device which was finally evolved after considerable experimenting consisted of a model 1917 machine gun tripod upon which was mounted a service rifle with the stock cut off at the small, equipped with a Winchester A-5 telescopic sight (see Plate 1). This

Plate 1—Long Range Aiming Device

Plate 2—The Long Range Aiming Device in Use

machine was placed on the one thousand-yard firing point and a "C" target run up in the pit and left exposed for the whole day's work. No pit detail was necessary.

The coach-and-pupil system is fully as applicable to the use of this device as it was to the rest of the training. The firer who is acting as coach sets the iron sights of the rifle at one thousand yards, with the gun aimed at the target and the cross hairs of the "scope" on the bull's-eye. The coach next gives turns to the elevating wheel and gives the rifle a tap to get it out of horizontal alignment. The pupil aims the rifle through the iron sights (see Plate 2). When he is satisfied with his aim, the coach checks it by the telescopic sight, plots the shot in a score book, and again puts the sights out of alignment. This is repeated until the number of aimings necessary to complete the exercise have been made. As in the two hundred-yard trianguation work, three shots were considered enough for each exercise. The telescopic sight enables the coach to check the firer's work readily and accurately.

The use of the long range aiming device proved to the satisfaction of the squad members and the officials in charge that eyesight had little to do with the poor results at one thousand yards. The triangles made by the squad members were most of them within the V ring. Very seldom indeed did anyone get out of the bull.

THE T-SCOPE AND ITS USES

Another valuable accessory to the training of the Infantry Team squad was the T-scope. This was a telescopic sight equipped with a prismatic eyepiece which deflected the line of aim at right angles. The sight was attached to the rifle of the firer and the coach observed the target through the eyepiece as the firer held, aimed and snapped his trigger. The T-scope was developed to test these three things: holding, aiming and trigger squeeze. It takes the place of the Belgian aiming device, except that its use does not give an actual picture of the firer's sights during aim. The Belgian device is unsatisfactory because of the indistinctness of its reflected picture. The T-scope permits not only a clearly seen check on the firer, but also one

that is more accurate than the firer's own aim, because it is magnified. There is, besides, another advantage. The T-scope can be used without interfering with the continuous aim of the firer, which is not true of the Belgian device. In the T-scope work the team coach checked and corrected the positions of the firer, as well as his hold and aim. If the movements of the T-scope cross hairs on the target while the firer held and aimed were too pronounced, the firer's position and form were then examined for faults. These corrected, the coach again observed the hold and aim of the firer. Thus, after the elimination of faults, the T-scope gave to the team officials an accurate measure of the holding ability of each firer.

The T-scope observations on each firer were checked against his work with the long range aiming device. The coaches found that some shooters, concentrating on aim alone, could make very small groups; but when these firers had to hold as well as to aim the rifle, their aim became erratic and uncertain. The coordination of their motor nervous systems was imperfect.

Whenever the T-scope disclosed an individual with this trouble, he received a thorough refresher course in position drill. Sometimes it was necessary to go over and over this work in order to bring the firer's aiming ability up to normal.

By recording the aiming ability of a large number of firers, the coaches easily arrived at a reasonable standard of perfection. The standard, of course, was placed just within reach of the best shooters when they were doing their best work. No standard was easy, nor were any of them impossible, to attain. At one thousand yards those who failed to hold their aim within an eighteen-inch radius of the center of the composite squad group received further instruction in aiming if an analysis of their positions brought out no faults. This instruction consisted usually in a verbal review of the visual elements of correct aiming.

In addition to perfecting the shooters' accuracy of aim, the T-scope enabled the coaches to get the mean sight setting for each squad, and to check the reaction of the individual firer to changing atmosphere conditions. This latter information is obtained to a greater degree of accuracy by means of the T-scope than by any other method.

Although holding and aiming are very important elements of rifle shooting, the worst mental hazard is the trigger squeeze. A firer's hold and aim may be second to none, but his marksmanship can never be better than his trigger squeeze. By observation with the T-scope the ability of the firer to squeeze correctly can be carefully checked in both slow and rapid fire exercises. Here again the detected faults were analyzed and every effort made to find their proper correction.

The information obtained from the use of the T-scope can be kept in the score book in the same manner as the data of actual firing. The firer, after aiming and snapping his piece, marks down his call in the score book. The coach then records the point of impact as indicated by the cross hairs in the T-scope.

(The next article of this series will appear next month)

Refinements in Mechanization

LIEUT. ROBERT J. ICKS, Infantry (Tanks)—Reserve

THE Secretary of War has approved a recommendation for the purchase of one Carden-Loyd tractor from Vickers-Armstrongs, Ltd. A vehicle of this type was listed as one of the items for development and use in the mechanized force. No doubt we shall soon know whether or not the Carden-Loyd will prove practicable for use in this country.

Major Ralph E. Jones, in the third article of his series appearing in the INFANTRY JOURNAL,[1] pointed out some of the expected uses of such a machine in the following words:

Ammunition-carrying parties are slow, vulnerable, and relatively ineffective and uneconomical. How much speedier and more satisfactory in every way for getting machine gun and mortar ammunition forward is the fast, armored, cross-country carrier? Such carriers may also transport small parties of men, machine guns, and ammunition, or larger combat reserves, to points where needed; they may transport engineers with equipment for demolitions, stream crossings, or other purposes; or they may deliver miscellaneous supplies such as barbed wire, gasoline, rations, and water. On their trips to the rear they may transport wounded men to suitable points for m e d i c a l attention. Artillery mounted upon such vehicles will be better able to render constant and close support to the line in a rapid advance or retirement. The speedy carriers will keep this artillery supplied with ammunition. Carriers with special bodies will be used for various special purposes, including command and communication. All of these applications will contribute greatly to combat mobility and effectiveness even though the majority of the men still move on foot. It thus seems apparent that although the expense of re-equipping will delay the change, we must and shall, sooner or later, find ourselves using speedy cross-country carriers for various purposes and in large numbers in our military establishment. Combat mobility is too valuable to be lightly cast aside.

This is not idle speculation on the part of Major Jones. It is a forecast based upon much study and a practical knowledge of the subject of armored military vehicles. Enthusiasts have long advocated a different type of vehicle for each projected use, but no army in the world could or would equip itself with such a multiplicity of types. The tendency, therefore, is to find a very few basic types which mount various bodies on all-purpose chassis. The British Vickers has its tank body and the 18-pounder accompanying gun body, the antiaircraft and dragon bodies; the American all-purpose T1E2 and Christie combination tank and armored car are examples; and the various French modifications of the Renault are further indications of this tendency.

For purely tank uses, no doubt our TE and Christie are superior vehicles, but for all-purpose uses we need such vehicles as the Carden-Loyd in considerable numbers. If we find they will work as tanks, a few modifications on the basic chassis would fit them for the purpose. Plates 1 and 2 illustrate the closed-top model recently created

[1] INFANTRY JOURNAL for December, 1929.

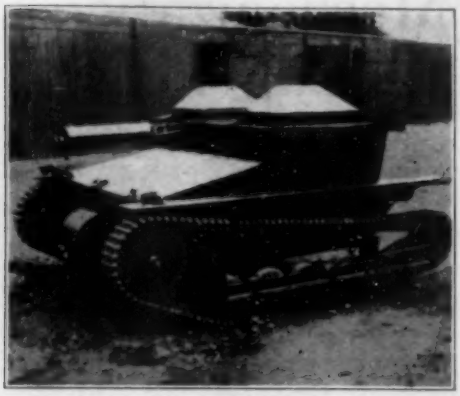


Figure 1—The Carden-Loyd as a Light Tank.

by Messrs. Vickers-Armstrongs. This top is in three panels and it opens or closes from the inside. These tanks could be carried on trucks of the new Model AA Ford or LQ Chevrolet types very easily if our present method of tank transportation were to be continued, or they could be fitted as wheel-cum-track tanks with slight modification, running on either tracks or wheels. While the original Carden-Loyd wheel-cum-track models had the wheels exposed there is no reason why the wheels could not be drawn up into armored sleeves when not in use. In the same manner the tracks could be protected as they are in the new Spanish Trubia tank. Eventually all tanks must come to this, thus protecting to a great extent the present point of greatest vulnerability, the track.

If we find we cannot use these small vehicles as tanks there is another purpose which suggests itself and which Major Jones mentioned—command cars or messenger cars. Once committed to action, tanks work more or less individually. Using a light fast vehicle, unit commanders could control their units by means of almost personal contact. As the corporal of the infantry squad shepherds his flock by moving from man to man, so could the tank unit commander control his unit by the use of one of these vehicles.

Captain Donald A. Stroh pointed out in his article in the INFANTRY JOURNAL for December, 1929, that both the RL-16 and the K-1 reel carts were unsatisfactory, chiefly from the standpoint of insufficient wire capacity. Here again a use for the Carden-Loyd appears. The Chemical Warfare Service feels that smoke and gas are going to play a large part in the future, especially against mechanized forces. The 4.2-inch Chemical Warfare mortar could easily be mounted and carried on one of these vehicles. Plate 3 illustrates the British infantry mortar dismounted for fire. For fast land-mine-laying purposes in defense against tanks, pulling tracked supply trailers for gasoline, oil, and ammunition, howitzer company weapons, special antiaircraft accompanying vehicles, and, of course, machine gun carriers, the Carden-Loyd presents the greatest number of possibilities along the line of a multiple-purpose chassis. That fact, coupled with its small size,

Figure 2—Top Panels on Carden-Loyd Tank in Raised Position.

Figure 3—British Infantry Mortar
Dismounted From Its Carrier and in Firing Position.

speed, and low cost, will make it most useful, and, as development and improvement continue, indispensable.

POWER PLANTS

The question of a suitable power plant for armored military vehicles raises some interesting points. At present the water-cooled engine is our most popular commercial type, and yet everyone who owns or operates an automobile can testify to its disadvantages, especially in winter weather. The air-cooled engine has received but little demand in this country. The people who use it never experience worn-out hose connections, leaky radiators, or trying this, that and the other thing as an anti-freeze solution. Air-cooled engines are giving satisfaction in both the commercial and the military world and it is astonishing that there is not a more general use of them.

The British Vickers Mark II uses an Armstrong-Siddeley eight-cylinder air-cooled engine which has proven satisfactory even in the hot temperatures of India. For a military vehicle the air-cooled engine is more foolproof than the water cooled. Further, the weight that is released as a result of the elimination of cooling jackets, radiation system, and the water itself, can then be turned to good account in thicker armoring or a larger fighting compartment, or both. There are other possibilities along the line of motive power which have thus far received but little consideration.

One of these is the application of the small automotive steam engine. There are a few examples in the commercial automobile world of automobiles with this type of power plant. The fire hazard is their one serious fault, but from almost every other viewpoint the steam-driven vehicle

Figure 4—The French Solution of the Carrier Problem.

New Citröen Cavalry Car with Kegresse Half-Metal Tracks

possesses every virtue of the gasoline driven, with others of its own. No transmission is necessary, the power and speed are far greater; silence, a very great virtue, is not lacking. The number of working parts is greatly reduced (in fact, the engine of the modern steam automobile has but thirty-two working parts); there is absolute freedom from vibration; and finally, the same fuel supply will carry the vehicle over the same radius of action as the internal combustion type. A highly satisfactory military vehicle might be developed in this way. At any rate, it is interesting to speculate about.

Another possibility in motive power is a new one which is beginning to receive some attention in the commercial world. A small gasoline engine builds up a pressure for a hydraulic system similar to a hydraulic brake system. Several test cars have operated over distances varying from two to four times as far as cars equipped with ordinary power plants could operate with the same amount of fuel. Details of the engine are not available as the cars are only in test form, but it is known that very few extra working parts are involved and the power developed is more than sufficient.

The problem of fuel supply is one which enthusiasts usually gloss over. Mechanized forces cannot live off the country as cavalry can. In almost every probable theater of war in our own country we could commandeer gasoline and lubricating oil from the countless filling stations and roadside pumps which dot the country. But this supply would soon be exhausted and our vehicles would again be dependent upon supply from the rear. Even with the lighter fuel consumption of the Diesel type engine, the problem of supply will remain the greatest with which we will have to contend in the free use of mechanical vehicles of all kinds.

VISION

Of all the problems connected with tanks themselves, the problem of vision easily ranks first. It is strange that it has apparently been left as the last to be solved. In spite of the remarkable advances in developing speed, maneuverability, freedom from mechanical breakdown, ventilation, and stability, we have actually advanced but little if our present tanks are as blind as those of the World War period were. Of what value will all the other improvements be if our tanks must grope about slowly, waiting to be hit, while the crews are vainly peering out in search of possible targets?

The original Mark I tank used a periscope device with glass prisms and horizontal eye-slits. The danger from breaking glass was later removed by the use of metal mirrors. This was found to be faulty and was so little

used by the crews that it was removed altogether. There was little advantage, as the field of vision was poorer than when the eyes were placed directly behind the eye-slits. Bullet splash was bad but it was risked for the sake of clearer vision, which was even then none too good.

Various armies have considered devices for the improvement of vision from tanks, but thus far the only expedient that seems to be practicable, and that only for the larger tanks, is the stroboscope. It is a well-known optical principle that the human eye can separate only a few rapidly moving images—our motion pictures are an example. The image of one picture is retained on the retina of the eye and blends in with the next one to appear. The stroboscope takes advantage of this fact. A series of slits in the circumference of a rapidly revolving cylinder or hollow wheel allows the eye to see through slits in a stationary cylinder either inside or outside of the revolving one. The field of vision is somewhat hazy but it covers three hundred and sixty degrees. The French have been the leaders in the use of the stroboscope (although it is used on our Mark VIII) and are using two on their heavy tank, the Char 2C. Dissatisfied even with the view so obtained, the French have designed a stroboscope which permits a binocular effect. This was accomplished by having the slits in the revolving cylinder cut at angles to the plane of vision as well as parallel to it.

The British have experimented extensively with what we call "triplex glass," as used in automobile windshields. The glass used in automobiles consists of two outer layers of glass and an inner layer of a transparent cellulose material. Through an elaborate process these are welded together. The kind used to resist bullets consists of five laminations and has turned aside machine gun fire at fifteen yards. Thus far, however, while it resists gun fire, it loses practically all of its transparency. It is, therefore, not yet developed to the point of being useful in tanks, because it would render them more blind than before, should the glass be struck.

While a sieve effect in the armor would render more complete vision it would weaken the armor unduly. It is a question whether the advantage would not far outweigh the disadvantage.

The Goerz tank periscope, an Austrian invention, is a new device which presents possibilities. But as it casts its image on a screen it is questionable whether the motion of a fast tank would not cause that image to be so badly distorted and blurred that its use would be of little value. Nevertheless it is understood that the Tank Board is contemplating a thorough test of the device with a view to its adoption for use in our tanks.

The problem of vision is a long way from solution in its application to all forms of tanks. When it is finally solved, then we can expect that tanks will be as useful as the enthusiasts would have us think, but not until then.

ANTITANK WEAPONS

The subject of tanks brings to mind the subject of antitank weapons. Three of the modern European heavy caliber automatic guns are shown in Plate 5, the Danish Madsen, the French Hotch-

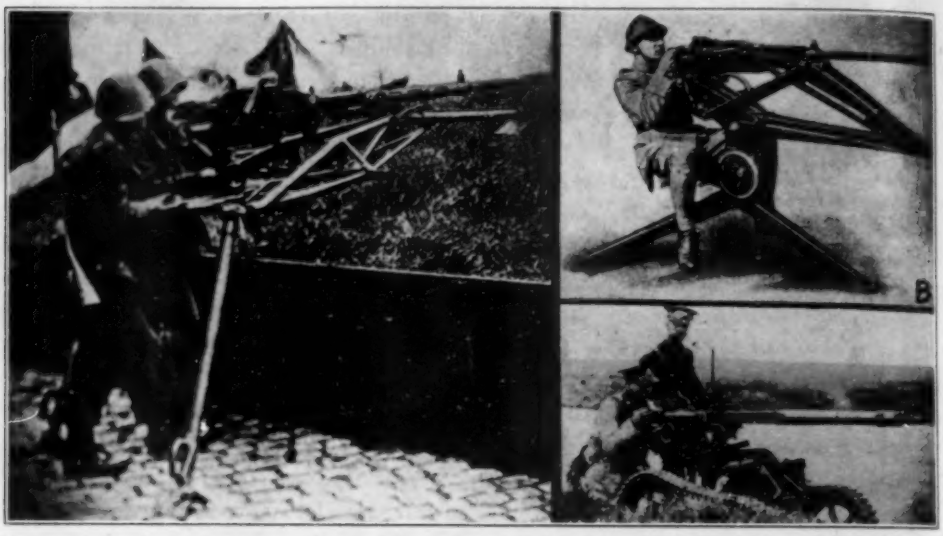


Figure 5—Three Modern Automatic Anti-Tank Guns
A. Madsen (Danish) B. Hotchkiss (French) C. Vickers (English)

kiss, and the British Vickers. With the possible exception of the Vickers, these weapons would seem to indicate a trend toward position warfare, engendered by the World War. As tanks are expected to maintain mobility in warfare it would seem that they may claim that position if they are to be combated with antitank guns of this kind. The three guns that are illustrated may be taken as representative of the modern tendency and, as far as armor penetration is concerned, they are formidable. From another standpoint they may not prove so useful. The modern tank is a weapon of surprise and, because of its speed, can maintain such a rôle with comparative ease. However, when we consider the surprise use of tanks and the fact that a thousand yards can be covered in a very few seconds, how could a gun of this type be successful in concealing itself before the tank attack developed, unless conditions were extremely favorable? If the gun was kept dismounted it could not be assembled rapidly enough to come into action. In position for defensive warfare it would no doubt stop tank attacks, but in open warfare such a weapon is too cumbersome and unwieldy.

It should be possible to provide a semi-antomatic shoulder weapon fitted with a sprung butt plate and small butt spade and bipod for use by infantry combat units. Such a gun need not be six feet or more in length; because it would not be used at ranges greater than eight hundred yards its barrel could be comparatively short. Its heavy caliber would give it sufficient accuracy for those ranges. Consider the short barrel of our service pistol and its accuracy and range. Fit this gun with sights based upon the Boyd-Greene antiaircraft machine gun sights, equip each infantry company with several of these guns, and we would have a weapon no more conspicuous than a service rifle, one that would always be available for repelling

a surprise tank attack, and one that would be feared because it would be present in sufficient numbers to stop such attacks.

The Boyd-Greene sight is mentioned because modern tanks move at high speeds; if this sight proves useful in antiaircraft combat, a modification of it should prove valuable in antitank combat.

Contrast the target offered by an infantryman in the prone position with the targets offered by the guns in the illustrations, to say nothing of mobility and ease of handling. A small, heavy-caliber antitank gun of this kind would prove no greater burden to the infantryman than our present Browning automatic rifle.

The day of surprises in weapons is past, but it is likely that we may look for a constantly greater application of devices already in use and interesting refinements of those devices, by means of which we may hope for mobility and not the deadly stagnation of the World War.

Of Interest to the Men of New York

ON January 30, 1930, Hon. L. A. Cuvillier introduced a bill in the Assembly of the State of New York, of which the following extract will be of interest to many New Yorkers:

Section 1. Each officer and enlisted man of the National Guard who was mustered into the service of the United States, and served in response to the call of the president of June 19, 1916, shall receive from the state for the term he shall have so served the pay to which he would be entitled under section two hundred and ten of the military law if he had been ordered for duty and had served within the state, less the compensation paid or to be paid to such officers or enlisted men by the United States. If any such officer or enlisted man shall have died the additional compensation to which he would have been entitled under this act shall be payable to his executor or administrator.

A Sand Table Problem for a Battalion Intelligence Platoon

LIEUT. W. G. SKELTON, 29th Infantry

MILITARY intelligence is an essential element in the preparation or the prosecution of all military operations. The battalion intelligence platoon secures information mainly in the presence of the enemy.

The battalion commander must have detailed, fresh, and accurate information of the enemy and the terrain over which the battalion is to operate if he is to conduct operations successfully. He must have prompt and accurate information of any change in the enemy's situation so that he may act to meet it. In a few words, the battalion commander wants to know the enemy's strength, his location, and his intentions. It is the mission of the intelligence platoon to secure this information.

Set rules and exact methods for the use of the intelligence platoon cannot be given. The intelligence officer must use his unit according to the needs of the situation. He sends out patrols on definite missions. Intelligence personnel—trained soldiers with initiative and intelligence—will secure the necessary information where a less qualified man will probably fail; and failure leaves the battalion commander groping in the dark, or worse, making plans based on inaccurate information.

The intelligence officer is responsible for the training of his platoon. Each man is taught map reading, sketching, scouting and patrolling, care and use of instruments, and combat principles. When this basic training is completed, sand table, map, or terrain problems are used to teach the men how to secure military intelligence.

The intelligence platoon of a war strength battalion headquarters company consists of two sergeants, five corporals, and fourteen privates, a total of twenty-one men selected because they are of the proper type. The platoon is divided into two groups, a scout group and an observation group. The assignment to a group is not rigid. The men are trained in all of the duties of the platoon and should be able to perform either scout or observation duty. The normal assignment of the personnel is:

Observation Group

a. One sergeant, draftsman, at the command post, in charge of the observation group. He records all incoming information on the work sheet or the situation map.

b. Three corporals, observers; each in charge of an observation post relief of two men.

c. Six privates, observers, who form three observation post reliefs. This group can operate one post for any length of time, or two or three posts for a short time.

Scout Group

a. One sergeant, chief of scouts, in charge of the scout group.

b. Two corporals, scouts.

c. Eight privates, scouts.

The size and composition of the patrols depend on the mission, the enemy's situation, and the terrain. In the average battalion attack a scout

corporal with two scouts is sent out with each flank combat patrol. The four remaining scouts are sent to the two assault companies to follow the attack.

A SAMPLE SAND TABLE PROBLEM[1]

GENERAL SITUATION

A. See sketch (from Fort Benning, Fire Control Map, Sheet No. 1).

B. The 29th Infantry crossed the Chattahoochee River this morning with the mission of covering the crossing of the remainder of the Blue division. The 2d Battalion, as the advance guard for the regiment, is now marching along the Clover Leaf road, with the point just clearing the crest of Maxey Ridge. The intelligence platoon is divided as follows:

a. With the reserve—the intelligence officer, sergeant draftsman, three corporal observers, six observers;

b. With the support—sergeant chief of scouts, corporal scout, three scouts;

c. With the advance party—corporal scout, three scouts;

d. With the point—two scouts.

SPECIAL SITUATION

Intelligence Officer (S-2): "As the point clears the crest of Maxey Ridge it receives hostile fire from Cook Ridge. Senior Point Scout, what do you now do?

Senior Point Scout: "I move forward with the other scout to a position on the crest from which I can see the enemy."

S-2: "When you get there you see about two squads of the enemy deployed on Cook Ridge."

Senior Point Scout: "I say to the other scout, 'Go back to the corporal scout (with the advance party) and tell him there are about two squads of enemy on Cook Ridge.' I remain in observation myself."

S-2: "Corporal Scout, what do you do now?"

Corporal Scout: "First I direct one of my scouts 'Go to the sergeant chief of scouts (with the support) and tell him that there are about two squads of the enemy on Cook Ridge.' I say to the point scout, 'Remain with my group.' Then I move over to the advance party commander to determine his actions."

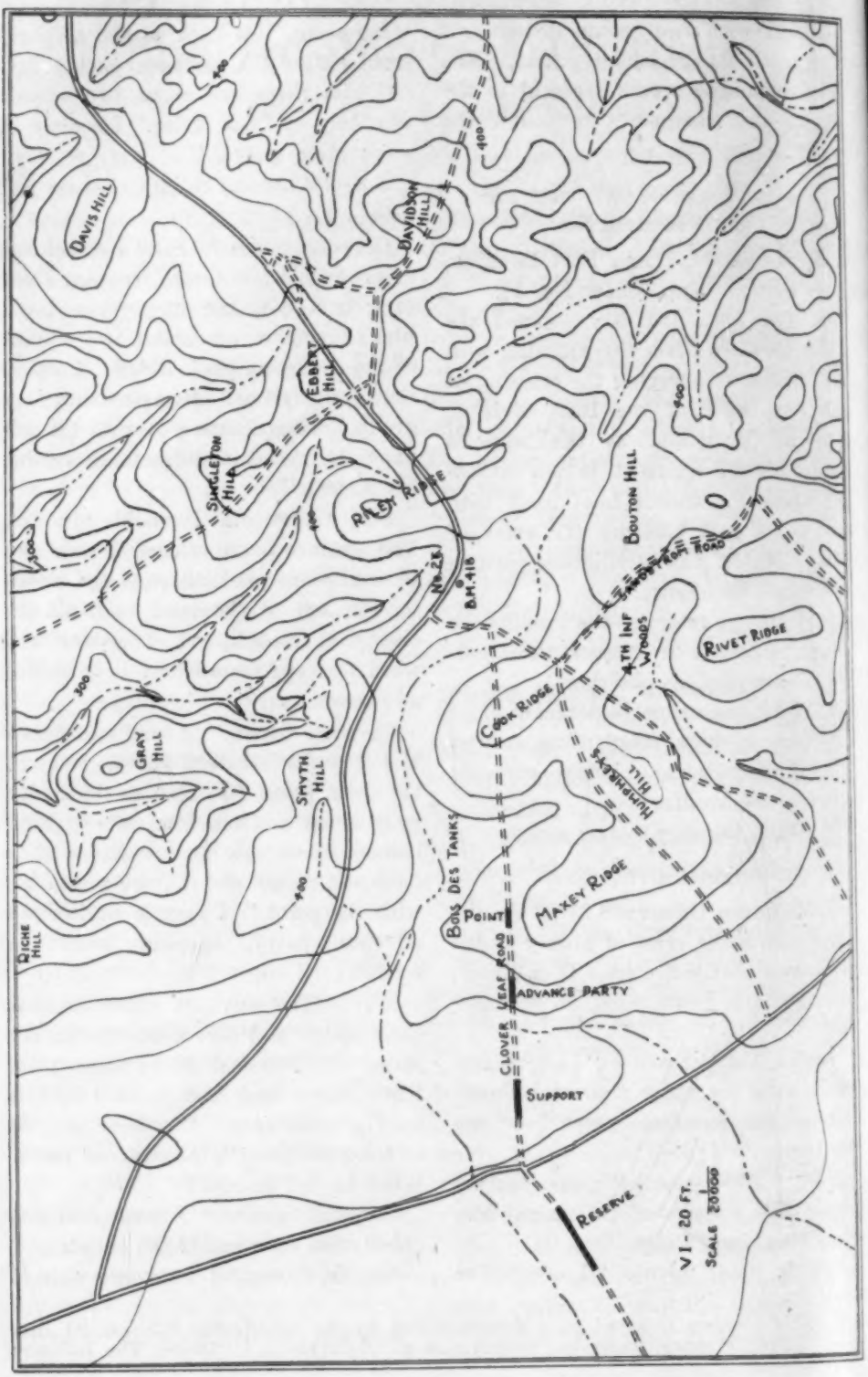
S-2: "The point is unable to move. The advance party commander decides to send two squads through the woods on the left of the road to flank the enemy on Cook Ridge. The point will work forward from where it is by fire and movement."

Corporal Scout: "I send two scouts to follow the left flank party. I say to the point scout, 'Go back to the senior point scout and tell him we are going through the woods north of the road to flank the enemy and that he will go on with the point.' I remain behind the advance party, keeping near the road."

S-2: "The advance party reaches Cook Ridge and drives out the enemy there. It received heavy fire from Riley Ridge and Bouton Hill and is unable to advance. You have arrived on Cook Ridge with the advance party. What do you do now?"

Corporal Scout: "I must find out quickly the strength of the enemy and locate his flanks. I send two patrols

[1] This problem is based on a demonstration by the Intelligence Platoon, 2d Battalion, 29th Infantry, under the supervision of Capt. Lewis C. Beebe, The Infantry School.


DAVIS HILL
DAVIDSON HILL
EBERT HILL
SINGLETON HILL
RACEY RIDGE
B.M. 418
BOUTON HILL
ABBOTTOM ROAD
4TH INF WOODS
RIVET RIDGE
CEDAR RIDGE
HUMPHREYS HILL
GRAY HILL
SMYTH HILL
BOIS DES TANKS
POINT
MAXEY RIDGE
CLOVER LEAF ROAD
ADVANCE PARTY
SUPPORT
RESERVE
RICHE HILL
VI - 20 FT.
SCALE 1/20000

of two scouts each to the right and left for this purpose and then remain in observation on Cook Ridge. I send the remaining scout back to the sergeant chief of scouts to inform him of the situation."

S-2: "Scout, you are in charge of the right flank patrol. What do you do?"

Scout: "I move back behind the crest of Cook Ridge, then over to that saddle (between Cook Ridge and Humphreys Hill), thence through the 4th Infantry Woods to a position on the eastern edge on the woods from which I can observe Bouton Hill."

S-2: "You see about a company of the enemy on Bouton Hill, with its left flank near the Sandstrom Road."

Scout: "I send the scout with me back to the corporal scout with this information and remain in observation."

S-2: "Sergeant Chief of Scouts, what are you doing now?"

Sergeant Chief of Scouts: "When I hear the heavy fire from the front I go to Cook Ridge. I meet the messenger along the road and he leads me to the corporal scout. After he has told me about the situation I send this written message to the intelligence officer, 'Advance party halted on Cook Ridge by heavy fire from Riley Ridge and Bouton Hill. Patrols have been sent to the right and left flanks'."

S-2: "In a few minutes the messengers from the patrols come in. What do you do with this information?"

Sergeant Chief of Scouts: "I send the messengers back to their patrols, leave the corporal scout in observation, and go back to the intelligence officer to explain the situation."

S-2: "I am coming forward and meet you just behind Cook Ridge."

Sergeant Chief of Scouts: "From a position back of the crest of the ridge I point out to you the location of the enemy."

S-2: "Basing his decision on this information, the battalion commander decides to attack with two companies. How do you dispose of your scouts for the attack?"

Sergeant Chief of Scouts: "I send the two corporal scouts to take charge of the flank patrols. These patrols now have the important mission of protecting our flanks by sending prompt and accurate information of any enemy movement there. The four remaining scouts I send with the assault companies, two to each company."

S-2: "The attack is successful and the battalion captures Riley Ridge and Bouton Hill and now holds the line along Singleton Hill—Ebbert Hill—Davidson Hill. The command post is in the draw near B. M. 26. Sergeant Draftsman, you will establish an observation post covering the battalion sector and report the location as soon as established."

Sergeant Draftsman: "First I look at my map and select an approximate location. I see that Ebbert Hill is the most commanding position in the battalion sector, and from it the most important part of the front can be seen. I tell a corporal observer to go forward with two observers to Ebbert Hill and establish an observation post there and to report the location at once."

S-2: "Corporal Observer, what would you do?"

Corporal Observer: "On my map I locate Ebbert Hill and select the best approach thereto. I will go there with two observers and find a place from which I can see as much as possible

of the front. If necessary, I hastily camouflage it so that I can see without being seen. I send one man back to the sergeant draftsman with the coordinates of this position.

"Then I take a prone position facing the front, holding the field glasses to my eyes, with my elbows resting on the ground so as to secure a steady position, and begin observing. I observe from right to left in my foreground. Then I observe a zone just beyond that and slightly overlapping. In this way I cover the entire sector to the limit of observation by a series of overlapping zones."

S-2: "What do you look for?"

Corporal Observer: "Anything that might pertain to the enemy."

S-2: "What do you do if you see a gun position, a trench, or other enemy activity?"

Corporal Observer: "I locate it on my map which I have in front of me and give the information to the recorder."

S-2: "Who is the recorder?"

Corporal Observer: "He is the other observer with me. He is in a position close by so as to be able to record any information I may get."

S-2: "What do you do about any activity of the enemy which you are unable to put on the map?"

Corporal Observer: "I have the recorder enter it on the observer's report."

S-2: "What is done with this information?"

Corporal Observer: "I send it to the sergeant draftsman periodically as ordered by the intelligence officer, or at once if it is important."

S-2: "Sergeant Draftsman, what do you do with this information?"

Sergeant Draftsman: "Any intelligence report that comes in from the observation posts or scouts is entered on the work sheet and S-2 situation map. If it is important the intelligence officer is notified at once. (Whenever called for by the battalion commander, the intelligence officer makes an S-2 report on the enemy's situation, based on the information on the S-2 map and work sheet. The battalion commander is informed at once of any important development in the enemy's situation.)"

S-2: "Corporal Observer, about the time you finish your preliminary survey of the front, the other observer returns. How do you use him?"

Corporal Observer: "I have one man act as observer and one as recorder. When the observer's eyes are tired the men will change places. I supervise them and see that any information secured is properly recorded and transmitted to the command post."

S-2: "Sergeant Draftsman, the battalion will remain here for some time. Arrange for reliefs at the observation post."

Sergeant Draftsman: "I send the other two corporal observers and four observers to the observation post for duty and have them change reliefs every two hours."

S-2: "Sergeant Chief of Scouts, where are the scouts now?"

Sergeant Chief of Scouts: "Two patrols consisting of a corporal and two scouts are with the flank combat patrols. The remaining four scouts are at the command post available for special missions."

Where Upton Made His Big Mistake

LIEUT. COL. R. M. CHESELDINE, Ohio National Guard

WHEN Secretary of War Elihu Root caused to be published in 1904 an unfinished manuscript by Brig. Gen. Emory Upton on The Military Policy of the United States, he performed a valuable service in the cause of national defense. That manuscript is a valuable contribution to military history, but it contains, as Mr. Root pointed out, some inconsistencies. And, paradoxical as it may seem, one of those errors was an active, though undoubtedly unintentional cause of our continued unpreparedness. Upton relied on certain quotations and inferences from the writings of George Washington to support his belief that reliance on the civilian soldier for purposes of national defense was unsound, and that therefore our chief concern should be the establishment of a large Regular army. George Washington at no time in his life, advocated such a policy. Our failure to interpret Washington correctly delayed our defense policy, and Upton's paper played no small part in the delay.

General Upton graduated from West Point in 1860 and had a distinguished record in the Civil War. After that conflict he set himself to interpret the lessons of the war for the benefit of national defense. Sent around the world as an observer by General Sherman, he made a voluminous report of his findings; this went into the files of the War Department, a small private printing only obtaining circulation. Upton's work was brought into the limelight by the remarks of Secretary of War Root at the laying of the corner stone of the Army War College in Washington in 1903. The Secretary spoke in glowing terms of Upton's contribution to military study and referred to his unfinished manuscript. This reference focused attention on it and it was published as a War Department document in 1904.

Upton was so filled with the laudable desire to awaken the public to the need of national defense that he perhaps was misled by his zeal. He wanted to see the army placed on a stable basis. Many of his reforms are now in effect. But he was absolutely opposed to the use of what he termed the "militia," and his remarks have been quoted so often and his references given such widespread circulation that those who do not know and have never taken the trouble to find out believe that the use of the "militia," as they still often call it, is a grave mistake. It is not unusual today to find officers in the Regular army (although their number grows less each year) and, countless numbers of civilians who have but a smattering of military history, referring to "Upton's Military Policy" as proof of the fact that the "militia" is scarcely worth all the money and labor spent upon it. They tolerate it, but do not take it seriously.

These worthy people are misguided. And Upton, whether intentionally or not, by use of incomplete quotations or careless research, has made it appear

to many that the First General of the Armies was thoroughly disgusted with the idea of making use of the militia.

Of course, the question of whether or not to maintain a large standing army had been a moot one for many years before Upton's article was printed. Undoubtedly, many officers of the army who believed as Upton did, had read his reports, and made him their champion. The printing of Upton's article gave impetus to the old discussion and it was made use of by proponents of a large Regular army as a vindication of their theories. From its pages they could take Upton's quotations from George Washington and point to the fact that, from the earliest days of the new nation, military leaders had opposed the reliance on citizen soldiers for general defense. These followers of Upton could pick from his work glaring examples of the inefficiency of the militia in all our wars. It is therefore not too much to say that Upton's writings had a marked effect on our military policy, but that effect was not what he desired.

Upton's disclosures of alleged fact were such that Congress, charged with the power of raising armies, was practically immobilized in that respect by a combination of political circumstances and the inherent belief of the people that the Uptonian policy of a large army was wrong. The people did not know of the Uptonian policy as such, but they were not persuaded that a large standing army was necessary. At the same time Congress was, perhaps subconsciously, influenced by the conclusions drawn by military experts from Upton against the development of the citizen soldier. The result was stalemate, and while the arguments went on this country had no adequate defense policy.

One who reads Upton and who also reads carefully from Washington's letters and messages to Congress, must, even though reluctantly, be led to the conclusion that General Upton started with the fixed idea that the citizen soldier could never be used successfully in the first line of defense, and accordingly chose from Washington's writings only those parts which best supported his arguments. If that conclusion seems unfair, the only other conclusion possible is that Upton was at best a casual reader and investigator and that his research into military history to support his theories lacked that thoroughness which should be used in the discussion of a question of great national importance.

Whatever the reason, recent research has disclosed that so much of the Uptonian policy as rests upon the allegation that Washington was opposed to the use of the citizen soldier in the vanguard of our defense, is a fallacy. But to be charitable to Upton and charge him only with careless research, it should be pointed out that some of Washington's statements read alone, would justify the Uptonian conclusions.

Washington left some writings that apparently present a paradox. In one letter he calls the militia a "broken staff," and in another he refers to it as the "palladium of our security." Each statement can be used alone to support the argument of the big army man or the militia adherent. But to be fair to Washington we must study, each statement must be studied in the light of the entire context of the message in which it appears and in relation to the situation in which Wash-

ington found himself when he wrote it. This Upton apparently did not do.

Much of Upton's work is valuable to the student of military history. It is not the purpose here to discuss his entire monograph. It is only to point out that Upton, unwittingly or otherwise, misrepresented the first General of the Armies, and thereby aided others who relied solely on Upton to discourage the development of the "militia" as an organized component of national defense. It required a century and a quarter for those who believed as Washington really believed to convince our law makers that Washington had worked out the ideal system of national defense for this nation, the one which suited our type of government and guaranteed protection at minimum expense.

In support of his theory, Upton goes back to the dismal days of the Confederacy when there was no army. He dips into Washington's letters and messages and apparently finds that he and Washington are in accord. In 1776, a few days after the battle of Long Island, General Washington wrote—

> To place any dependence upon militia is assuredly resting upon a broken staff. . . . For if I were called upon to declare upon oath whether the militia had been most serviceable or hurtful, upon the whole I should subscribe to the latter. Experience, which is the best criterion to work by, so fully, clearly, and decisively reprobates the practice of trusting to the militia, that no man who regards order, regularity, and economy, or who has any regard for his own honor, character, or peace of mind, will risk them upon this issue.

And in December, 1776, after his humiliating retreat through New Jersey, Washington again addressed the president of Congress. In that letter he said of the militia that, ". . . they come in, you cannot tell how; go, you cannot tell when; and act, you cannot tell where; consume your provisions, exhaust your stores and leave you at last at a critical moment."

If we read no farther we must conclude that General Washington had little use for the militia, and that he felt from his experience that it was his duty to warn the new nation that it must develop a defense policy which would profit by his experience and place its reliance on a trained military force and not on the militia. Indeed, General Upton quotes from another letter which Washington sent to the President of Congress on September 2, 1776, a quotation even stronger in its expression of Washington's belief than those above. "I am persuaded and as fully convinced as I am of any one fact that has happened," asserted Washington, "that our liberties must of necessity be greatly hazarded, if not entirely lost, if their defense is left to any but a permanent standing army. . . ."

That direct and positive statement would apparently clinch the argument and award the decision to General Upton! *But that is not all of the quotation.* General Upton did quote it in full in his article, but he apparently attributed no significance to the last clause of the sentence which reads, ". . . if their defense is left to any but a permanent standing army; *I mean one to exist during the war.*"

What did Washington mean by that? General Upton calmly ignores the last clause. Yet therein lies the key to the military policy which George Washington felt that this nation should adopt.

We have suggested that General Upton did not quote sufficiently from

Washington to warrant using Washington's theories in support of his own. To prove that we are correct in that belief, let us read some other statements made by our First President as the result of his military experiences, and see how they can be reconciled with what we have already quoted. Washington's first military policy was formulated in 1783. In April of that year Congress invited Washington to give his sentiments on a peace establishment for the new government. Realizing the importance of his task, he took up the question with his generals who had experienced the difficulties of the Revolution. While these men differed in details, essentially they were in accord. Washington summed up the views in his paper, "Sentiments on a Peace Establishment."

Before quoting from that paper it would be well to look into the then existing military establishment. Prior to the Confederacy each state had to provide for its own security—there was no national force. Massachusetts, by an act of its provincial congress, designated all its able-bodied males between the ages of sixteen and fifty as "militia." These men were expected to obey a call to arms for defensive purposes. They were expected to secure their own arms and be ready for any local raid upon the province. How well they stood the test is indicated by their defeats of the British at Concord and Lexington. But those engagements were local raids and, with the inevitable war approaching, it was certain that unorganized volunteers could not be expected to combat trained forces for a prolonged period. Massachusetts therefore organized a smaller and more active army from the younger men of this "militia," who enlisted for prolonged military service. This was the theory on which the Continental army was based.

But, while the theory of prolonged service was sound, in its application ideas differed. The result was that the citizen became a soldier of the Continental army for *the prolonged service of six months or a year.* Washington, at the head of the army, received increments of green men from the militia of the states to serve for six months and then depart. It is no wonder that we read Washington's scathing criticism of the militia. "Militia" was merely a generic name for all able-bodied men between certain ages, capable of bearing arms. These men were not soldiers; they were untrained civilians, and, if they served for but six months, they left the service still untrained.

It was this militia to which Washington referred as a "broken staff." It was this militia of which Washington said, ". . . they come in you cannot tell how, go you cannot tell when. . . ." With these men Washington struggled through the dark years of the Revolution, gradually obtaining a force which remained with him for an appreciable time, and finally, with the help of his professional officers, wrested victory from the enemy. Therefore, when Washington wrote that our liberties would be lost unless there were a permanent standing army to protect them, he meant that he needed men *for the duration of the war—not for six months!*

After the war Washington reviewed his experience. He knew that an armed force was essential for defensive purposes. He knew that that armed force must be created as part of a plan which would look to the future. He knew

the days following the war would of necessity require the services of all available men in the paths of reconstruction, of building a nation. How could he create a military force sufficient to guarantee protection and yet not withdraw from necessary civilian pursuits large numbers of men? And how could he do this without encountering the dangers of the old militia system? These were the problems that faced Washington and which he solved in his paper, "Sentiments on a Peace Establishment."

The "militia" was in existence. It was, at least by acts of Colonial legislatures, understood to be all able-bodied men between eighteen and fifty years, who were required to be enrolled in the several counties. In his paper Washington referred to this requirement and conceded it to be sound on the theory that all men were under obligations to defend their country. But he added,

> . . . as it is obvious among such a multitude of people (who may indeed be useful for temporary service) there must be a great number who from domestic circumstances, bodily defects, natural awkwardness, or disinclination, can never acquire the habits of soldiers . . . there are a sufficient proportion of able-bodied young men between the ages of eighteen and twenty-five, who . . . might easily be enlisted or drafted to form a corps in every state. . . .

Here was the germ of his idea. He would begin by actually organizing into military groups a small proportion of the entire militia. But once organized, what was to be done with them? Washington continues,

> I would wish, therefore, that . . . a judicious system might be adopted for forming and placing [them] on the best possible establishment. . . .

There is not sufficient space here to quote all of Washington's plan. What has been quoted shows his theory of organization and the development of a system. In a letter to the governors of all the states in 1783, Washington elaborated on his theory. It is significant that he wrote to the governors of the states. He knew that, by the terms of the articles of confederation, each state was required to "keep up a well-regulated militia, sufficiently armed and accoutered" (Article VI). But he was thinking of his "organization" and his "system" and he knew it could come about only through the cooperation of the states. Consequently he wrote to the governors,

> The militia of this country must be considered the palladium of our security, and the first effectual resort in case of hostility. It is essential, therefore, that the same system should pervade the whole; that the *formation and discipline of the militia of the Continent should be absolutely uniform.*

In the light of these latter quotations it is not difficult to understand what Washington meant in those writings quoted and relied upon by General Upton. The militia, unorganized, unarmed, and untrained men, entering an army to remain but a few months, were assuredly a broken reed on which to lean for support against a well-organized, trained, and equipped British army. But the young men of the country who constituted the militia were naturally the ones on whom a nation would rely for defense in any war, and no one would deny that they must be considered the "palladium" or custodian of our security. But to assure us the best results and to prevent a

repetition of the disasters of the Revolution, it was essential that these young men be organized and trained according to one system, a uniform plan which would be used in all the states, so that when the various state groups were brought together for common defense they would form one army.

There is certainly nothing in these quotations from Washington to justify the assumption that Washington had no use for the citizen-soldier and advocated placing entire reliance upon a professional army. At no time did Washington advocate a permanent standing army in time of peace as our sole means of general and immediate defense. He did advocate the maintenance of a Regular or professional army to provide ". . . . some permanent establishments for protection of our frontiers and security of our magazines," which he felt would be necessary "independent of militia."

If anything more were needed to show that Washington was an advocate of the policy of using the citizen soldier for general defense, it can be found in the Constitution of the United States, signed by Washington in 1778, just four years after he prepared his paper on the Peace Establishment. In that document we find that the use of the militia is recognized by the Federal Government as a prerogative of state sovereignty, and the people who gave to the Federal Government all of its powers by the Constitution, gave to Congress the power to provide for "organizing, arming and equipping the militia" (Sec. 8, Art. I), and the power to provide for "calling forth the militia to execute the laws of the union, suppress insurrections and repel invasions." (Sec. 8, Art. I.) And in the Second Amendment to the Constitution we find the statement, "A well-regulated militia being necessary to the security of a free state, the right of the people to bear arms shall not be infringed." Those might indeed be the words of Washington, insisting on the declaration of his policy of uniformity in training and organization of the militia.

Not content with having seen his theory firmly established in the supreme law of the land, Washington again took occasion to express himself on this subject. In his message to Congress on January 8, 1790, President Washington said, "A free people ought not only be armed, but disciplined, to which end a uniform and well-digested plan is requisite." In that statement he indicates clearly that he believes that a free people, citizens, should be armed and disciplined for military defense and that all should willingly submit to one plan which would secure uniformity.

If one feels that General Upton should not be criticized for parts of his work, it can be said in his defense that a professional army sufficient in size to provide adequate defense for any emergency would undoubtedly produce quicker results in war than a citizen-army which can devote but a part of its time to military training. But if General Upton was arguing solely from that viewpoint he failed to justify his position. He contended that the nation's opposition to such a system was based on an absurd theory that our people believe that a large standing army is dangerous and inimical to the principles of a democracy, that they have been taught to be afraid of a large army, and that they, therefore, through Congress, refuse to sup-

port one. Upton's premise is incorrect.

Without arguing the question of the value of a large trained professional force in actual warfare, the basis for the refusal of this country to maintain such a force is the inherent belief that it is not necessary to our national security to withdraw a great host of men from the paths of civilian pursuits and maintain them as a permanent armed force. Washington and other founders of the nation believed this. But they saw the need of supplementing a small Regular army with a well-trained body of citizen-soldiers. Those who came after Washington evidently did not feel so strongly on this point as he did, and consequently the citizen-soldier policy was not developed. Hence wars have found us ready with only the small Regular army and no well-trained citizen force.

General Upton's criticism of our lack of preparedness rests to a great extent upon the argument that the citizen-soldier can not be adequate for defense, that the policy which includes him as such under his own officers is weak. Therefore, while he recognizes that a prolonged war would necessitate the ultimate use of the man in the street, he would place our defensive policy on a large professional army. Lack of preparedness in this country has been caused by the failure of those responsible to develop the theory laid down by Washington. The citizen-soldier was never given a chance to be prepared until the national defense act of 1916 was adopted. The failure of the citizen-soldier forces in past wars was due to the failure to provide the well-regulated plan which Washington insisted upon. The result of that failure was that the professional army went to war supplemented by a force not much better prepared for war than the militia of Washington's Continental Army.

Again, to give General Upton full credit, we might argue that, if his criticism is directed at the use of militia, and if by militia he means the *untrained civilian*, he is correct. A nation that will rely on untrained civilians for military defense should be aroused to its dangers, and if it insists upon that policy, the creation of a powerful professional army should be urged as the only means left for defense. But it cannot be argued that Upton did not believe that a successful system for training the civilian could ever be devised. *No system had been devised because no one had tried it.* But that was no reason for contending that one could not be satisfactorily worked out.

How thoroughly Washington's policy has been vindicated is evidenced by our present military policy. Washington might indeed have written the national defense act of 1916, so closely does it follow in many respects his general plan for using the civilian. Today the well-regulated militia of which he spoke is our National Guard. General Upton would have considerable difficulty in making his criticism of the use of the citizen-soldier fit the present citizen components of national defense. It required but the application of a "uniform and well-digested plan" to the younger men of the militia to prove that Washington was right.

Too often today we hear the name "militia" applied to the National Guard. This nomenclature is not correct. The National Guard is not militia. All able-bodied male citizens between the ages of eighteen and forty-five are members of the militia of the

country. They are not organized, armed, or equipped. But the National Guard, while most of its members come from the militia class, is an organized, armed, and trained military force, and should not be called militia.

It is interesting here to note that the present National Guard did not, in fact, have its origin in the militia of Revolutionary days. It dates further back than that. During the Revolutionary War there were two classes of soldiers in the Continental army—the "militia" and the "independents." The "militia" consisted, as we have said, of the able-bodied men between certain ages who were expected to render military service when called upon to do so. They did not belong to any military organization prior to a call to duty.

But the "independents" or "train bands" were organized bodies of young men who were trained to a certain degree in the military art. Washington, viewing these organized groups, advocated training all the young men of the militia under one system, or *organizing the militia.* He later placed emphasis on organizing "a sufficient proportion of able-bodied young men, between the ages of eighteen and twenty-five. . . ." Thus he advocated extending the "independent" system.

The independents, however, traced their ancestry back to the days of the early Romans. Under the Roman system each Pagus of land maintained a hundred warriors, which constituted its *militia,* or men capable of bearing arms, on the theory that any man who held land must pay for the privilege by military service. These men were the peasants who fought when the overlord told them to do so, in order to obtain their sustenance, but national pride was unknown to them. They were not under the control of the king but of their own immediate landlord. The kings found it necessary to organize for their immediate service the *comitatus.* From this comes our term sheriff's posse comitatus, for the sheriff originally was a captain in the king's service. The rank and file of this comitatus was drawn from the sons of noble families which held land in fee from the king, and out of the comitatus came all the titles of nobility.

This permanent volunteer force was the origin of the British army and its present force of territorials. King Alfred, in his reorganization of this force, established regular drill periods (now a part of National Guard duty), and designated a rendezvous in each shire, which was the armory where armor and military equipment for each soldier were stored.

It was the comitatus, through its noble leaders, that forced the Magna Charta from King John. This act more firmly established the power of the free soldier and gained him wider recognition. Successive rulers of England recognized the volunteer force and increased the scope of its activities. It was Cromwell, however, who gave it its greatest impetus. He disliked conscription and drafts for raising armies, and put his entire faith in a volunteer army, whose men elected their officers and, when not on actual duty in ranks, mingled freely with them—the true citizen-soldiers.

The American colonists who returned to England to serve Cromwell brought back to their homes this idea of soldiery and gave to the new nation the system of "train bands" and "independents," which were the real fore-

runners of the National Guard. These organized volunteers flourished in many of the colonies before the Revolution. In 1683 the English attempted a levy in mass to recruit their army in the Colonies. This levy was taken from the militia, the unorganized young men of certain ages, but the groups of organized volunteers were not touched. The latter groups were proud of their lineage and superior to this drafted militia. The militia was pro-British and Tory in sympathy, while the independents were strongly with the Colonial patriots and acquitted themselves nobly. It was of their force that John Adams said, ". . . It is one of the cornerstones of the Constitution."

The courts of the state of New York, in Mills vs. Martin, Rathbun vs. Martin, People vs. Scrugham, and People vs. Jackson, have declared that the National Guard is not militia, but distinctly a voluntary state force in time of peace, which has agreed to serve in the Army of the United States in time of national emergency.

However, by Federal law the National Guard of today is, in fact, the "organized militia." In 1903 the Dick bill declared, ". . . That the regularly enlisted, organized, and uniformed active militia of the several states, territories and the District of Columbia . . . whether known and designated National Guard, militia, or otherwise, shall constitute the organized militia." This was an attempt to gather under one designation the various types of state organizations and to distinguish them from the generic term "militia."

The national defense act of 1916 provides that the ". . . militia shall be divided into three classes, the National Guard, the Naval Militia, and the unorganized militia." It is, therefore, clear that, no matter what its origin, the present National Guard is by law declared to be an organized group taken from the whole militia. It is, therefore, the force that Washington insisted should be our first line of defense, our first reliance in time of emergency. But the National Guard is proud of its lineage and resents being charged inferentially with the faults and failures of the untrained men who bravely tried to combat trained forces in our past wars. The term "militia" was used by both Washington and Upton to designate groups of men who were not capable of the task of combating the professional enemy. The National Guard of today is welcomed by the professional soldier who knows and understands it as a worthy ally, a compatriot which has been trained by the professional to a degree of efficiency but little below that of the Regular. The National Guard is an organization, planned by Washington, based on his experience with the trained volunteer of the Revolution.

It is interesting in the light of the efforts since 1916 to develop the National Guard by every means open to the Federal Government, and in the light of the results obtained, to turn back again to Washington and to read his message to Congress in which he advocated forming a militia corps in each state,

> . . . capable of resisting any sudden impression by a foreign enemy, while the remainder of the national forces would have time to assemble and make preparations for the field. I would wish, therefore (continued Washington, that the former (that is,

the whole militia) being considered as a *dernier resort* reserved for some great occasion, a judicious system might be adopted for forming and placing the latter (that is, a portion of the younger men), on the best possible establishment, and that while the men of this description shall be viewed as the van and flower of the American Forces, ever ready for action and zealous to be employed whenever it may be necessary in the service of the country, they shall meet with such exemptions, privileges, or distinctions, as might tend to keep alive a true military pride, a nice sense of honor, and a patriotic regard for the public."

This was Washington's true vlsion and has been made a concrete thing in our National Guard. Its development and practical application have given us the most economical system of defense possible, and have produced the most democratic military force the world has ever seen. Former Secretary of War Dwight F. Davis, in his annual report of 1928, might well have been speaking to Washington in answer to the First President's wish expressed in 1783, when he said:

. . . The National Guard of the United States has reached the highest point of efficiency ever reached in its history. . . . The result is that today (it) stands . . . capable of meeting any demands which may be made upon it within the various states and ready to take its place in the front line of defense. . . .

That was all Washington asked—that it be "capable of resisting any sudden impression by a foreign enemy, while the remainder of the national forces would have time to assemble. . . ." After one hundred and twenty-five years we can say to General Washington, "You were right," and in fairness to Washington we should say to General Upton, "You were mistaken."[1]

[1] The writer acknowledges indebtedness to Brig. Gen. John McA. Palmer, U. S. A., retired, for his research into the writings of Washington, and to Lieut. C. S. Clark, N. Y. N. G., for data contained in his paper, "The Origin and Status of the National Guard."

Heavy Marching Order in a Roman Legion

From the Notebook of "General Experience"

THE foot soldiers of a Roman Legion habitually carried a greater weight of "impedimenta" than is customary with modern soldiers. Their regular equipment weighed eighty-five pounds and consisted of shield, lance, helmet, cloak, set of armor, seven darts, a bag of corn, and two posts or palisades (for the stockade erected at each nightly halt).

Military and Civil Power in the Philippine Islands

CAPT. S. F. COHN, Infantry

Many army officers who arrive in the Philippines for duty have an erroneous idea of the legal relations that exist normally and in time of emergency between the Commanding General, Philippine Department, and the Governor General of the Philippine Islands. Nor does service in the Islands always correct opinions previously formed and based on meager knowledge of the subject. The present brief discussion should be helpful. —EDITOR.

THERE exist in the Philippine Islands two agencies designed to administer the will of the sovereign power of the United States over these Islands. Each agency, within its sphere, aids, assists, and represents the sovereign power in accordance with the lawful duties and functions assigned to it. Both operate directly under the supervision of the executive department of the Federal Government, although the civil agency is itself subdivided into the same three grand divisions that distinguish the distribution of authority in the Government of the United States, namely, the executive, legislative, and judicial branches.

Under normal conditions neither the military nor the civil power is superior to the other. Each is supreme in its field. The commanding general of the Philippine Department represents the military power of the sovereign government; while the governor general represents the civil power of the same sovereign government, and at the same time constitutes the executive branch of the Philippine government.

Although these agencies are independent of each other, they must help each other. Congress has decreed—Act of Congress August 29, 1916, Section 21—that the governor general shall be responsible for the faithful execution of the laws of the Philippine Islands; and that in carrying out this responsibility, he may, if he deems it necessary, call upon the commanders of the military and naval forces of the United States for assistance. Indeed, it is his duty—pursuant to Section 21 of the Act of 1916—if the exigencies of the situation demand, to call upon the military agency to assist him "to prevent or suppress lawless violence, invasion, insurrection, or rebellion" and in "maintaining order and enforcing the laws of the Philippine Islands" (Revised Administrative Code, P. I., 1917, Section 64).

The above power, which Congress granted to the governor general, is subject to but one limitation. This is that when he has had occasion to exercise the authority granted him—to call upon the military for assistance or to declare martial law—he will immediately report his action to the President of the United States, who may modify or vacate such action.

Although it is not specifically stated in the act of Congress, nevertheless it must be presumed that the above section of the Jones Law (Act of August 29, 1916) authorizes the commanding

general of the Philippine Department to respond to a call for assistance made upon him by the governor general. Since the President may modify or vacate the action of the governor general, confirmation of the action by the President would constitute a tacit direction to the commanding general to respond to the call made upon him by the civil power.

The important point to be remembered is that in the Philippines the commanding general need not await direct orders from the President before offering assistance to the civil government. His action, however, is presumed to be at the direction of the President even in the absence of express orders from the latter.

In this respect the relation between the commander of federal troops in the Philippine Islands and the governor general of the Islands differs somewhat from that between the commander of federal troops within a state and the governor of that state. In the latter case the commander—except in cases of extreme urgency which are justified only on the ground of necessity—must await orders from the President of the United States to whom the governor (or the Legislature, if it is in session) is required to submit his call for assistance (Revised Statutes, Section 5297).

If the military agency in the Philippine Islands should respond to a call for assistance from the governor general the military power would act merely in support of the civil power. It would aid and assist wherever and in whatever manner such assistance might be required; and when aid was no longer required the military agency would immediately withdraw to its own field.

This relation conforms exactly to the status of the military forces of a state that have been called out by the governor to assist him in enforcing the law. The courts of the United States—state courts—have always recognized that so long as the machinery of government continues to operate, the function of the military agency is merely to assist the civil agency in enforcing the law; not to assume the duties of the civil government. The latter action of the military can be justified only on the ground of extreme necessity, such as actual—not threatened—insurrection, there being no other government capable of functioning.

Thus far we have been discussing the relation between the military and the civil power in the Philippine Islands under normal conditions, or conditions that may appropriately be described as "temporary emergencies." Under such conditions we have seen that the military may extend aid to the civil power which is immediately withdrawn when need therefor no longer exists. What would be the situation if a state of war were declared to exist in the Philippine Islands?

War in the Philippines would be an emergency condition threatening the continued existence of the sovereign power of the United States over the Islands. Since the primary duty of both the military and the civil agencies in the Philippines is to maintain, enforce, and defend the sovereignty of the United States, it would behoove these agencies to cooperate with each other to the end that the forces that threatened this sovereignty might

speedily be destroyed and the danger removed.

However, the declaration of a state of war in the Philippines would not, of itself, create an emergency that would affect the normal relations between the two powers. It is not the mere declaration of war, but rather actual conditions that may follow or exist during the conduct of the war that would affect the normal relation. Even in war the military would not interfere in the civil government except to aid and assist such government.

On the other hand, war in the Islands might conceivably bring about a condition under which no civil government would be able to exist at all. Perhaps this breakdown of the machinery of government would be local only—in the area of actual hostilities—or it might be general throughout the archipelago. Again, it is conceivable, although highly improbable, that the governor general would be opposed to the war to the extent that he would deliberately interfere with its successful prosecution. In such a situation the actual machinery of government might exist and be entirely capable of functioning. Nevertheless, if permitted to function, the result would be to destroy the very sovereignty which it is designed to protect. From the standpoint of the military such a situation would be intolerable and would call for immediate interference by the commanding general in the affairs of the civil government.

If either of the above conditions should exist, therefore, it would be the duty of the commanding general of the Philippine Department to assume the responsibilities of the civil power and carry out its functions. He would declare that a state of martial law existed, either locally, in the area affected, or generally throughout the Islands; and would proceed to enforce the law by whatever means available.

In so doing he would represent directly the executive branch of the United States Government, whose duty it is to enforce the law. During the continuance of these conditions the will of the military commander would be supreme and, for the time being, his directions would be the law. However, as the Supreme Court of Appeals of West Virginia—in the case of State v. Brown, 1912—said, "It is only while military government is used as an instrument of warfare, that the commander's will is law."[1]

Briefly, such are the relations between the commander of federal troops stationed in the Islands and the governor general thereof. It is difficult to conceive of a situation in which any appreciable conflict could arise between the representatives of the two agencies, or one in which both would not strive to the best of their ability to defend the sovereignty whose agencies they are. If such a conflict should arise, it would, of course, be determined in the light of its own particular facts and the principles that underlie the whole question.

[1] Although the court in this case used the expression "military government" what it really meant was "martial law." "Military government" refers only to government of enemy territory, with which question the opinion was not concerned at all.

Notes from the Chief of Infantry

Commissioned Personnel, Office Chief of Infantry

Chief of Infantry
MAJ. GEN. STEPHEN O. FUQUA

Executive
COL. LORENZO D. GASSER

Section I—Personnel
COL. C. C. ALLEN
MAJ. E. F. RICE
MAJ. L. S. HOBBS

Section II—Intelligence
MAJ. T. B. CATRON
MAJ. S. J. CHAMBERLIN
2D LIEUT. P. C. HUTTON, JR. (Temporary)

Section III—Training and Inspection
LIEUT. COL. E. J. MORAN
MAJ. B. MAGRUDER
MAJ. C. H. BONESTEEL
CAPT. W. G. LAYMAN

Section IV—Arms and Equipment
LIEUT. COL. E. BUTCHER
MAJ. T. LAWRENCE
MAJ. J. D. PATCH
MAJ. H. TERRELL

Section V—Mobilization and Organization
COL. F. W. BUGBEE
CAPT. P. E. LEIBER

Refresher Course at Tank School

THE great and growing importance of armored and unarmored motor vehicles in war, as particularly applied to Infantry, is again emphasized by the recent decision of the War Department, based on the recommendation of the Chief of Infantry, to institute a special course yearly at the Tank School for field officers and senior captains of Infantry. The first course will be from August 4 to August 15, 1930.

This step is the third of a series recently taken to prepare the infantry officer better to appreciate the importance of motor vehicles and better to study and later to handle the problems connected with a greater use of motor transportation. It likewise acquaints the infantry officer with the important problems connected with the use of the modern fast tank and cooperation between foot and armored elements of the Infantry Team.

The first step referred to above was the additional emphasis given to tank subjects in the Infantry School courses, including the refresher course for senior officers. The second was the increase in the number of students, particularly from infantry regiments, in the regular Tank School course, which is attended largely by officers in the company officer grades. The coming special course at the Tank School

will give this important instruction to those who have already graduated from the Infantry School courses, but who have not had the advantages of the emphasized instruction, and to additional senior officers.

The tentative plans for the refresher course contemplate that the students, about fifteen in number, will be selected from the infantry officers in attendance at the special course at the Chemical Warfare School, which takes place July 7 to August 1, 1930. In general, it is expected that the course will include fifty-eight hours of instruction. The plan is to have eighteen hours of tank details, characteristics and limitations of various tanks, including riding in same; four hours of operation of motor vehicles, including troop movements; six hours of tank gunnery; twelve hours of tank reconnaissance; and eighteen hours of tank tactics.

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Reorganization of the Infantry in the Division

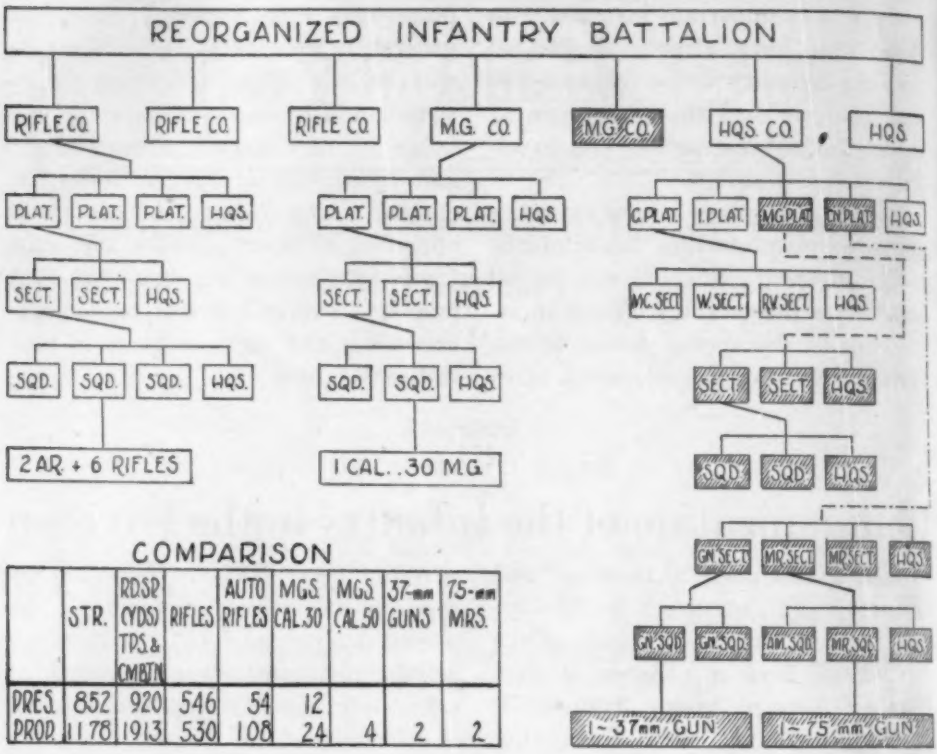
THE second phase of the study and experiment to determine the organization of the infantry units of the division has been in progress at Fort Benning, Georgia, since January 1. The 29th Infantry has been working at it under the supervision of the Infantry Board. The first phase of these studies and experiments took place during the summer and fall of 1929 and resulted in the recommendations for a reorganized battalion.

The composition of the reorganized battalion recommended by the Chief of Infantry was approved by the Adjutant General in December, as a basis for conducting further experiments to determine the organization of all infantry units in the division. The new battalion has again been organized in the 29th Infantry and experimentation is in progress at the present writing.

Five tests have been conducted: (1) review and inspection of the organization; (2) the battalion as an advance guard of a larger force in a meeting engagement; (3) reserve battalion acting independently in the attack of a hostile covering force; (4) the battalion occupying an interior sector in a deployed defense; and (5) the battalion acting independently in the attack of a hostile bridgehead and the securing of a bridgehead for its own forces. It is expected that the second phase of this study will end about March 31, 1930.

It will be remembered that the first phase of the experiments was conducted to determine how an infantry battalion, war strength, could be organized to obtain an increase in firepower by the use of a greater number of automatic and semi-automatic weapons, rather than by adding to the number of riflemen. The weapons to be considered were those infantry weapons now available and already approved as standard. Road space was not to be considered of paramount importance.

The study necessarily started with the smaller units and involved testing various combinations of squads, platoons, companies, and finally of battalions. These tests included incorpo-



COMPARISON

	STR.	RDSP (YDS) TPS. & CMBT'N	RIFLES	AUTO RIFLES	MGS. CAL. 30	MGS. CAL. 50	37-mm GUNS	75-mm MRS.
PRES.	852	920	546	54	12			
PROP.	1178	1913	530	108	24	4	2	2

rating the 37-mm. gun, the 75-mm. mortar, and the caliber .50 machine gun organically in the battalion. Heretofore, the first named two have been regimental weapons, and the last named, although tentatively assigned as a battalion weapon, has never been issued.

The accompanying chart shows the reorganized battalion as recommended by the Chief of Infantry. The hachured blocks indicate units which were added to the old war strength battalion. It should be especially noted that the rifle squad now contains two automatic rifles and six rifles. A comparison of the strengths of the present war strength battalion and the proposed war strength battalion is also shown on the chart. The strengths of the rifle and machine gun companies of the new battalion are the same as in our present war strength battalion. In the rifle company, the company commander and one bugler are mounted, and in the machine gun company the third platoon, formerly a caliber .50 platoon, is now a caliber .30 platoon. The two machine gun companies of the battalion are identical in organization and armament. The strength of the battalion headquarters company, with the added caliber .50 machine gun platoon and cannon platoon, is two hundred and two, as compared with its present strength of sixty-four. The caliber .50 machine gun squad, armed with one caliber .50 machine gun, is composed of one corporal and eight privates. The caliber .50 machine gun platoon has an aggregate strength of forty-eight. The machine guns are transported on eight one-ton trucks. The 37-mm. gun squad is composed of

eight men. The section has a strength of twenty-two men. The 75-mm. mortar squad is composed of thirteen men. The mortar ammunition squad has ten men. The cannon platoon has an aggregate strength of seventy-nine. The remaining units of the headquarters company are unchanged in strength.

The outstanding feature of the recommended battalion is the increase in the number of automatic weapons. This permits a development of fire superiority during the neutralization phase of infantry combat, with minimum demand upon the riflemen of the attacking force. The latter are less exposed to casualties and at the same time have greater freedom of maneuver.

It is not anticipated that the tactical employment of the proposed battalion will differ widely from that of the present war strength battalion. The principal changes will result primarily from the increased number of automatic weapons. The employment of the interior units may consequently be modified. It is probable that the platoons of the added machine gun company will habitually be attached or employed in direct support of the rifle company to provide a pivot of fire formerly provided by riflemen and automatic riflemen. The provision of two automatic riflemen in the squad will permit establishing a stronger pivot of fire, or will provide an accompanying automatic with the maneuvering element to allow for unexpected contingencies. The increase in the number of weapons in the cannon platoon will result primarily in an increase in effectiveness. It is not anticipated that any marked change in the tactical employment will result. The caliber .50 machine gun platoon will be employed on antiaircraft and antitank missions. The method of the use of these weapons will not materially affect the tactical employment of the battalion.

It is believed that the type of battalion recommended provides a material increase in fire-power above that of the present war strength battalion, and at the same time preserves a proper balance in shock power, flexibility, density, controllability, and mobility.

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Infantry Team—National Matches

PLANNING is under way for the selection, organization, and assembly of candidates for the Infantry Rifle and Pistol Teams of 1930. The Chief of Infantry has gained contact with regimental commanders and the latter are furnishing information of promising candidates in their regiments. Upon receipt of complete information from all regiments in the continental United States, the selection of candidates to try out for the Infantry Team will be made.

Maj. Courtney H. Hodges, Infantry, has been selected as team captain for 1930. It is expected that he will be directed to report at the Office of the Chief of Infantry in the near future to assist in completing the arrangements for the selection and organization of the squad.

At present, the Infantry has the distinction of being the National Rifle Team Champions of the United States.

Cartridge Belts, Dismounted

RESULTING from a number of years of development, an experimental cartridge belt has been produced which, after recent test by the Infantry Board, has been recommended to replace our standard belt when the existing stocks have been exhausted.

An experimental belt was originally tested in 1924, but certain unsatisfactory features were developed during the test. The experimental belt which was recommended for adoption is the belt previously tested, but with the unsatisfactory features corrected. It is made of standard widths of webbing throughout, thus obviating the manufacture of the material on special looms, as is necessary with our present belt.

The illustrations show the experimental belt and the present standard belt. The important changes in the new belt are:

a. The eyelets for carrying equipment along the lower edge of the belt are larger, for greater ease in inserting the hooks of articles suspended to the belt.

b. The cartridge pockets are not gathered at the bottom, thus preventing unequal fading, and wear caused by insertion of cartridges.

c. An inside flap, hooked on the outside of the pocket under the outer flap, holds the outside cartridge clip in place, thus diminishing the possibility of losing the outside clip when the inner one is extracted.

d. The hooks on the ends of the adjusting straps are eliminated. Tongueless bar buckles hold the adjusting strap to a certain adjustment. The loose ends of the adjusting straps are kept in place by loops on the inside of each half of the belt.

e. The fastener, although of the same principle, has been modified so

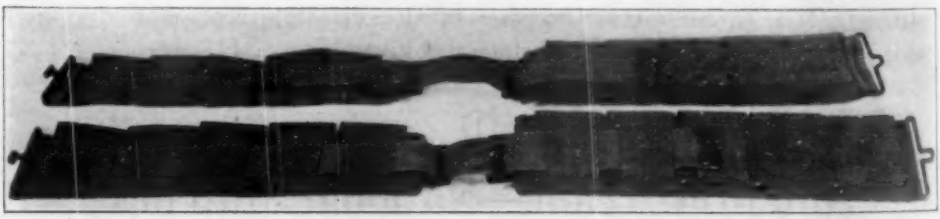

Plate 1—Upper, Present Issue Cartridge Belt; Lower, Experimental Cartridge Belt. Note loops, adjusting strap, instead of eyes and hooks.

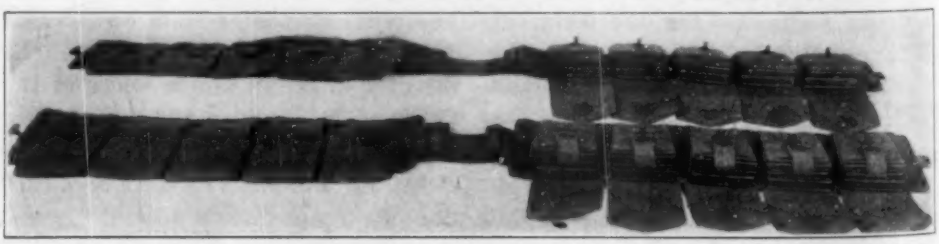

Plate 2—Upper, Present Issue Cartridge Belt; Lower, Experimental Cartridge Belt. Note retaining straps for front clips.

that it is necessary to turn the two parts at a right angle to each other to unfasten. This change will prevent the annoyance of having the belt become unfastened during field exercises as is now often the case.

This belt still has the disadvantage of not being susceptible of adjustment to the small man. Its minimum length of adjustment is some thirty-four inches, which is the minimum length of a belt that has ten pockets, each capable of carrying two clips of caliber .30 ammunition.

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Classification of Infantry Officers

EACH year, starting with the first of the fiscal year, a review of the efficiency report of all Regular infantry officers is made in the office of the Chief of Infantry. The data contained on the latest efficiency report is transcribed onto the permanent record of that officer in this office, and his entire record is reviewed to determine whether or not a revision in his classification is necessary. This revision of the classification of infantry officers has recently been completed for 1929. The status of classification of infantry officers, excluding Philippine Scouts, is shown in Table I.

The changes in general rating from the preceding year are shown in Table II.

TABLE I

CLASSIFICATION OF INFANTRY OFFICERS

Strength as of January 31, 1930

Ratings	*Cols.*	*Lt. Cols.*	*Majs.*	*Capts.*	*1st Lts.*	*2d Lts.*	*Total*
Superior	25	35	30	13	3	1	107
Excellent	101	96	310	670	345	84	1606
Satisfactory	57	54	197	723	431	306	1768
Unsatisfactory	0	0	1	8	3	1	13
Inferior	0	0	0	0	0	0	0
Not rated	0	0	0	0	0	[1]129	[1]129
						[2]1	[2]1
Total	183	185	538	1414	782	522	3624

[1] Graduates United States Military Academy, 1929.

[2] One second lieutenant initially not rated; sick entire fiscal year, 1929.

TABLE II

	Cols.	*Lt. Cols.*	*Majs.*	*Capts.*	*1st Lts.*	*2d Lts.*	*Total*
From unsatisfactory to satisfactory	0	0	0	0	0	0	0
From satisfactory to excellent	3	2	26	74	44	22	171
From excellent to superior	3	5	10	3	0	0	21
From superior to excellent	0	1	1	0	0	0	2
From excellent to satisfactory	1	1	1	9	2	0	14
From satisfactory to unsatisfactory	0	0	0	4	1	1	6

It will be noted that the general ratings of one hundred and ninety-two infantry officers were raised, as opposed to a lowering of the ratings of only twenty-two officers. This fact alone demonstrates the progressive improvement in the efficiency of the infantry officers. It is particularly encouraging to note the large number of officers who progressed from the satisfactory to the excellent classification.

As has previously been stated in these notes, the rating of an officer is rarely changed until he has shown uniform performance in the next higher or next lower classification for a number of years. The changes noted, therefore, result not for performance of 1929 only, but also for the two or three years just preceding.

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Qualification with Infantry Arms

The following additional reports of practice with Infantry weapons have been received in the office of the Chief of Infantry:

RIFLE MARKSMANSHIP[1]

	1	2	3	4				5	6
Inf. Regt.	No. of men on rolls required to fire	No. of men who completed the course	Pct. who completed the course based on 1	Number of men who qualified				Average score per man	Pct. qualified based on No. who completed the course
				Exp	SS	MM	TOT		
1	594	418	70.37	11	85	274	370	266.64	88.52
2	683	599	87.70	75	153	343	571	278.16	95.32
3	604	555	91.89	108	172	256	536	286.22	96.58
6	573	552	96.33	124	170	241	535	284.40	96.92
9	657	583	88.74	52	126	381	559	277.13	95.88
10	543	513	94.47	87	145	260	492	286.71	95.91
12	625	562	89.92	68	112	342	522	274.88	92.88
13	656	591	90.09	77	115	334	526	271.35	89.00
14	1096	1034	94.34	186	303	499	988	281.83	95.55
16	548	437	79.74	186	126	125	437	297.20	100.00
17	708	646	91.24	97	166	359	622	281.04	96.28
19	716	645	90.08	56	198	376	630	281.16	97.67
21	691	635	92.01	22	116	404	542	265.35	85.35
23	686	578	84.26	32	95	390	517	268.62	89.45
24	751	654	87.08	38	108	408	554	266.20	84.71
25	686	624	90.62	135	208	271	614	289.66	98.39
26	592	515	86.99	116	131	241	488	283.27	94.76
28	687	592	86.17	85	122	312	519	271.77	87.67
33	1049	1003	95.61	120	357	515	992	286.21	98.90
65	699	634	90.70	220	238	176	634	297.16	100.00

[1] Published in August, 1929, INFANTRY JOURNAL: 8th Infantry, 96.97%; 11th, 91.49%; 15th (1st Bn.), 91.96%; 35th, 91.26%; 57th, 98.89%.

Published in November, 1929, INFANTRY JOURNAL: 5th Infantry, 99.09%; 20th, 89.11%; 27th, 88.82%; 31st, 92.18%; 34th, 92.66%; 45th, 99.49%.

MACHINE GUN MARKSMANSHIP[2]

Inf. Regt.	1 No. of men on rolls required to fire	2 No. of men who completed the course	3 Pct. who completed the course based on 1	4 Number of men who qualified Exp	1Cl	2Cl	TOT	5 Average score per man	6 Pct. qualified based on No. who completed the course
1	185	164	88.65	10	41	111	162	305.33	98.78
2	185	164	88.65	8	23	127	158	292.06	96.34
3	201	176	87.56	16	55	105	176	320.82	100.00
6	187	180	96.27	5	22	145	172	288.20	95.55
9	203	178	87.68	16	32	128	176	308.09	98.88
10	200	183	91.50	40	32	111	183	321.51	100.00
11	185	160	86.49	9	27	121	157	299.30	98.13
12	134	124	92.54	77	40	7	124	366.99	100.00
14	319	295	92.48	83	99	113	295	335.92	100.00
[3]15	149	140	93.96	41	61	38	140	344.78	100.00
16	196	176	89.79	95	43	38	176	358.20	100.00
17	155	148	95.48	11	27	108	146	296.50	98.65
18	200	161	80.50	135	17	9	161	383.21	100.00
19	217	200	92.16	10	55	135	200	311.91	100.00
21	219	182	83.10	28	76	78	182	330.07	100.00
23	212	196	92.45	80	34	81	195	338.21	99.49
25	183	169	92.35	60	39	70	169	340.48	100.00
26	199	177	88.94	14	43	120	177	303.88	100.00
28	183	147	80.33	68	26	47	141	335.95	95.92
33	313	289	92.33	29	93	167	289	321.89	100.00
65	156	156	100.00	33	61	62	156	334.39	100.00

[2] Published in August, 1929, INFANTRY JOURNAL: 8th Infantry, 100%; 15th (Co. D), 100%; 22d, 98.19%; 27th, 100%; 35th, 100%; 57th, 100%.
Published in November, 1929, INFANTRY JOURNAL: 5th Infantry, 100%; 13th, 94.08%; 20th, 99.85%; 31st, 100%; 34th, 100%; 45th, 100%.
[3] Companies "H" and "M."

37MM. AND 3" T. M. MARKSMANSHIP[4]

1	19	4	21.05	4	0	0	4	.....	100.00
2	14	14	100.00	1	8	5	14	.....	100.00
3	10	10	100.00	5	4	1	10	.....	100.00
6	18	18	100.00	1	7	10	18	.....	100.00
9	18	18	100.00	4	13	1	18	.....	100.00
10	19	19	100.00	1	10	8	19	.....	100.00
12	15	15	100.00	15	0	0	15	.....	100.00
13	17	17	100.00	4	4	8	16	.....	94.12
14	18	18	100.00	15	3	0	18	.....	100.00
15	18	16	88.88	14	2	0	16	.....	100.00
16	21	21	100.00	6	15	0	21	.....	100.00
17	18	18	100.00	10	7	1	18	.....	100.00
18	13	13	100.00	7	5	1	13	.....	100.00
19	17	17	100.00	16	1	0	17	.....	100.00
21	19	17	89.47	13	1	3	17	.....	100.00
23	19	19	100.00	13	6	0	19	.....	100.00
25	15	13	86.66	6	1	6	13	.....	100.00
26	19	19	100.00	5	8	5	18	.....	94.74
28	12	11	91.67	2	6	3	11	.....	100.00
33	12	12	100.00	9	1	2	12	.....	100.00
65	19	19	100.00	3	12	4	19	.....	100.00

[4] Published in Auguust, 1929, INFANTRY JOURNAL: 8th Infantry, 11th, 22d, 35th, 57th—*all, 100%.*
Published in November, 1929, INFANTRY JOURNAL: 5th Infantry, 20th, 27th, 31st, 34th, 45th—*all, 100%.*

Miscellaneous Notes

Digit-Finger Lamp.—A digit-finger lamp, designed to facilitate the reading of fire control instruments at night, has recently been tested by the Department of Experiment, under the supervision of the Infantry Board. The lamp was attached to the finger and operated from a flashlight battery carried on the user. The lamp was found convenient of use, but because of the large probability of its disclosing the position of the user, it was considered unsatisfactory for the Infantry.

Side-Cutting Pliers.—A pair of side-cutting pliers of commercial design, recently tested by the Department of Experiment, under the supervision of the Infantry Board, has been recommended for adoption as standard for future manufacture and issue to the Infantry in lieu of the existing type of cutters, wire, small. The experimental pliers were found satisfactory for the general use of the Infantry. They are not, however, as well adapted to special purposes as, for instance, electrician's pliers issued to communications units. It is not intended that such pliers will be replaced by the experimental article.

Hand Set Telephone.—A hand-set telephone of commercial manufacture, recently tested by the Department of Experiment, under the supervision of the Infantry Board, showed promise. Its weight, two and seven-tenths pounds, was much less than the standard telephones with which Infantry is now equipped—EE4, eighteen pounds, and EE5, eleven pounds. The hand-set telephone was of equal audibility, smaller, and much more portable than the standard telephones. A number of unsatisfactory features were developed in the test. Investigation is now being made as to the possibility of their correction. It is expected that a further and more extended test of these telephones will follow.

Shoe-Measuring Devices.—Two shoe-measuring devices, recently tested in comparison with the Reseo device, failed to show superiority to the last named, which is now standard.

In general, it was found that the shoe-measuring devices gave only an indicated size. To be certain of the correct size of the shoe it is generally advisable to have an actual try-on. The measuring device will generally, however, prevent equipping a soldier with shoes too small for his feet.

the War Department to proceed im- no evidence of *leadership*, no display

Reviews and Discussion

Military Procedure

Prepared expressly for the citizen soldier

MAJ. GEN. E. G. PEYTON, U. S. Army

For study and file with Training Memorandum No. 1[1]

TRAINING NOTES
No. 4

EFFICIENCY REPORTS

WITH the rendition of efficiency reports required at the end of the calendar year 1929, it seems appropriate at this time to discuss these reports, and in very general terms to make reference to some of the important items upon which officers are rated.

When we consider the serious functions of war in all its phases, we are bound to realize the great responsibility that devolves upon the commissioned officer. The officers comprising the Regular Army component of our military establishment are privileged and required to devote their entire time to the study and practice of military art. The knowledge and tactical skill thus acquired must be readily available for the instruction and training of the civilian components of the Army of the United States. The officers selected for the civilian components are expected to possess qualities of leadership and professional zeal, and educational qualifications that will insure a prompt grasp and understanding of the fundamentals of the military profession, and a further acquisition of tactical knowledge when the period of general mobilization demands that they devote their entire time to fitting themselves to train and lead groups of fellow citizens in numbers commensurate with their rank.

It is manifestly unfair to the American citizen not to give him the best chance in war for preservation of life and limb that trained and skillful leadership guarantees. It is therefore essential that commanders who are responsible for the training of their officers make every effort to bring them up to the highest state of efficiency. After our entry into the World War, our Allies enabled us to hold training camps of three months' duration for the intensive training of additional officers required for the emergency. Our National Defense Act will provide us with the officers needed for the next emergency, and it is expected that the professional zeal and peace-time training of these officers will enable the Government to hasten mobilization and

[1] See INFANTRY JOURNAL for January, 1930, page 77.

the War Department to proceed immediately with organization and training.

In order to keep the War Department informed as to the progress and tactical efficiency of officers, an efficiency report of each officer is made by the officer's immediate commanding officer on a printed form provided for that purpose. After the form is made out by the officer's immediate commanding officer, it is forwarded to the next higher commander, who concurs or who makes such revisions in the report as he deems proper, and the report is then forwarded through channels to its final resting place.

The form does not rest in a dead file; it is consulted every time the officer is considered for any kind of special duty, detached service, or promotion. It is also searched to ascertain any special qualifications that the officer may possess.

Generally speaking, many deficiencies in items of the efficiency report are traceable to lack of *force*. Force is the quality that develops from mastery of one's self, and asserts itself in a *self domination* that will impel the officer to accept only the highest standards of accuracy in meeting the requirements of the military profession.

During armory training, even though instruction is limited to one night per week, a National Guard unit is capable of reaching a very high state of training, provided the instruction is adequate and carefully planned, and the individual maintains interest and throws effort into his work. Even a superficial inspection of a unit will accurately show the qualities of leadership the unit possesses.

Weakness, lack of *attention to duty*, no evidence of *leadership*, no display of *initiative* and a deficiency in *judgment* and common sense are shown when an officer accepts such inferior standards of efficiency for a unit as the partially trained men therein either individually or collectively offer. Such an attitude stamps an officer as a *follower* rather than a *leader*. A very serious fault frequently found in officers is lack of *professional vision*, marked by a failure of the officer to think during peace training in terms of the battlefield. In battle, the leader must possess and offer his own and the soldiers' *all* in the accomplishment of the mission. Right now, the leader must study, plan and develop in himself the qualities that will empower him to exact that *all* in battle.

An officer must definitely exercise more *self domination* to drive him to correct deficiencies that he now has. He may feel convinced that he has not these deficiencies, but if his superiors conscientiously feel that he has them, his record will suffer in consequence. If he does possess the attributes in which he is thought to be deficient, he must now dramatize them. For instance, to dramatize *administrative and executive duties*, the officer should make it an unfailing rule to return within twenty-four hours any communication requiring his administrative action. In this connection, it is pointed out that the National Government pays an officer for the faithful performance of administrative functions, and an officer is clearly *not entitled* to this compensation if additional letters are normally required to get proper administrative action on the original communication.

An officer may be thought to be fall-

with a lesser degree of exposure and for their fire power value, they

ing below average in *attention to duty*. This was no doubt first suggested by a slow, seemingly indifferent and lackadaisical attitude. He may likewise be approaching the verge of minimum requirements in the exercise of *judgment* and *common sense* and *initiative*. He may feel that as a junior officer he has few opportunities to exercise these qualities. While opportunity may knock but seldom, initiative will place an officer in the path to receive the blow. He must use *force*, self-mastery, *self domination*, to make him seek opportunities, and not merely to display but to dramatize these qualities by making an abrupt and spectacular change in many of his personal attributes. For instance, his slow gait in approaching duty must be accelerated, and in reaching duty his facial expression must be more alert and receptive. He must *work* hard to develop and *display* the attributes that he is either concealing or that he did not previously possess.

Another common fault among the officers is that they do not convert thought into energetic *action*. There is not a day that the well-prepared mind does not produce a thought for the betterment of this or that; but it remains in the realm of thought and is eventually lost, whereas if it were converted into energetic action immediately, the officer's initiative would be dramatized and numerous opportunities to develop and display other essential attributes would result. If the mind does not produce such thoughts for the betterment of this or that, then it needs nourishment in the form of study, research, and sharpened observation.

Your success in your military endeavors will be assured and your efficiency reports will show improvement if you will start now, by more than ordinary effort, to *dramatize* the military qualities described in par. H of the efficiency report, and to *convert constructive thought* into *energetic action*.

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Fire-Power Plus Mobility Behind an Adequate Shield

Capt. Davis Jones, 16th Infantry

TWO articles in the Infantry Journal for November and December, 1929, have started a train of thought. These articles are, "The Future of the Infantry," by Captain Bolte, the third of his enlightened series, in the November issue, and Lieutenant Icks' paper on "Featherweight Fighting Machines" in the December issue. Apparently these two articles are quite unrelated, yet I find a very close relation between them.

On page 460 of the November issue, Captain Bolte, in speaking of the experiments and tests of the self-loading rifle, caliber .276, says, ". . . the requirements of the battlefield point to the adoption of an individual firearm which will deliver a greater volume of accurate fire in a short space of time,

with a lesser degree of exposure and fatigue to the firer. . . . One of the arguments advanced against the adoption of a more rapid-firing individual weapon maintains that the rapidity of consumption of small arms ammunition will be too greatly increased."

His own argument in rebuttal to this stated disadvantage is well taken. He goes on to say, "The new rifle will in all probability replace both the Springfield and the present Browning automatic rifles, for, while the latter was originally intended as a weapon delivering automatic fire, it was found unsuitable for this purpose and is used solely as a single-shot weapon."

All of this is quite true. For the purpose which I have in mind, I wish that the facts so clearly outlined above be kept in mind for a moment, while I quote from the article by Lieutenant Icks. In general he argues that the present tendency (in mechanization) is toward decreasing the size of armored vehicles, and he argues his point well. He states, "A light tankette . . . could be developed around the light motorcycle engine. . . . These vehicles could be built in two styles. There could be an open type and the same vehicle fitted with a closed top. . . . The open-top type could mount either a howitzer or a machine gun for firing on the move or for quick dismounting from the ground. . . ."

Then he presents the obvious argument against the tankette, not as a machine gun *carrier*, but as a base for machine gun firing: "Without a doubt one of the most important (disadvantages) is the fact that a gun firing from one of them in motion is likely to hit anything but the target. Therefore, if we consider light vehicles only for their fire-power value, they are out of the question. But there is another aspect—the moral and psychological. . . . The moral value of all tanks is to the fire-power about as three to one, and the proportion increases directly with their speed and maneuverability."

Is there not a perfectly logical point of contact between these two widely divergent lines of thought? We have, in the one case, a new development of potential fire-power, not as great as that of the machine gun (on a secure mount) but greater and more accurate than that of the automatic rifle, and better than a machine gun on an insecure mount, when it can hit "anything but the target."

Combine the two. Provide a certain number of these tankettes, of the open-top type, to be designated as scout tanks, the crew to consist of the driver and one well-trained scout, armed with one of the new self-loading rifles.

At first glance it does seem absurd, I admit. When we think of tanks, we think naturally of shock and ruthless total destruction in mass. When a machine gun is mentioned, the trained soldier visualizes a spray of bullets against a massed target. We have been so accustomed to thinking of tanks as land dreadnoughts, firing terrific broadsides at or crushing beneath them otherwise invulnerable positions, that it is hard to conceive a different picture.

But, if the trend really is toward smaller tanks, the picture must change accordingly. We have recently trained ourselves to visualize the small tank with a machine gun armament, rather than the heavy tank with its one-pounders and three-pounders, when considering their work with foot

a powerful weapon the battalion com- son. The tank could bring forward

troops. Is it so illogical to go one step further and visualize the tankette, built around a motorcycle engine, with its armament of an expert rifleman with a rapid-fire weapon?

The English view presented in Lieutenant Icks' article does not quite satisfy me. That view is that "the light tank will lead the attack, drawing the fire from the infantry and determining whether the ground is suitable for the larger tanks."

The picture is incomplete. The foreground is clear-cut and distinct. Then the vision blurs. What are the tankettes doing leading the attack, in addition to these rather secondary missions? It seems to me they are vitiating some highly important intrinsic values. The answer is obvious. They are scouts, of course, preceding the attack, far more rapidly, boldly, and efficiently than our infantry scouts now can possibly do. Until our present method of platoon attack changes, that is, one section only in the assault, three tanks to the platoon would provide the leader with a fund of information that would be gratifying in the extreme, and security that would be comforting beyond measure.

As scouts, then, in an attack, with the enemy's positions already partially located, the tankettes screen the infantry's advance, draw the enemy's fire, develop his flanks, and locate and point out important and dangerous targets. If they accomplished this much well, half the battle is won. But our tanks, with their potential shock and their new fire-power, may themselves reduce many of the closer targets. What targets worthy of machine gun fire will they discover during the first stages of the attack? Will not a few well-aimed shots, some with tracer ammunition, by our scout in his mobile fire trench, perform a far more valuable service than a machine gun blazing away ammunition at what could rarely be proper machine gun targets, and then merely "hitting anything but the target"?

It was stated that the use of the tank is twofold; that the moral value of the tank is to the fire-power about as three to one.

With a scout, a trained rifleman firing aimed shots from a rapid-fire weapon, would not the effective fire-power of the tankette be actually increased rather than diminished? It is self evident that if experiment should prove this contention incorrect, or that the fire effect of the riflleman would be less than that of the machine gun with its fixed mount on the jolting tank, none of the moral effect of the tank has been lost. And, as the moral effect is proportionately so much greater than the fire effect, the loss, if any, becomes relatively unimportant. We have then gained only the difference in ammunition that would be consumed. But even this is still a gain.

To continue the picture. These scout tanks would continue their action after the initial stages of the attack much as cavalry would. If the resistance were light, they could cut through and exploit their success. If the enemy's resistance stiffened, they could move off to the flanks with a speed far greater than that of cavalry, a poorer and much less vulnerable target.

Under cover, in the rear or on the flanks, our scout tanks could join those of other platoons and such others as might be specially designated. What

a powerful weapon the battalion commander now would have at his disposal for use in counter attack, flank envelopment, pursuit! A chugging cavalry.

Our infantry scouts, when held up by enemy fire, outline the firing line, which is built up from the rear. The firing line then takes advantage of such natural cover as exists. The scouts in tankettes may do the same. And then the firing line need not depend wholly upon natural cover; the line of tank scouts would afford cover from fire to the firing line in a measure limited only by their number. The crews, of course, would fire dismounted.

I hasten to reply to those whose hoots and howls rend the air at this suggestion because the tanks would present perfect targets for antitank weapons, when immobile, and because they see at once a line of twisted steel and torn rubber where the line of tanks formerly was. I do not grant such an assumption to be correct. Many of the tanks will be put out of action, of course. What of it? The one outstanding advantage that this country has over any possible belligerent nation is its overwhelming superiority in the production of motor vehicles. At present eighty per cent of the world's output comes from us. We could continue to make eight or ten machines to one from any other nation. Let the machines be sacrificed to the limit of output, if it has the advantage of protecting the personnel.

One more most important characteristic of the little tank that can still be utilized—its carrying capacity. The scout would be able to carry sufficient ammunition for himself upon his person. The tank could bring forward additional ammunition for the machine guns, the howitzer weapons, or both. They could dump it (by a possible hopper bottom arrangement) or the crew could unload it near the firing line which they have outlined.

The machine guns would not be forgotten. Only a portion of the little tanks, naturally, would be designated as scout tanks to be manned by riflemen. In addition to others designated for support, counter attack pursuit, and the like, would be those assigned to the machine gun companies. The machine guns (essentially supporting weapons) would be brought forward at the proper time and in their proper places in the attack formation, instead of being sent forward, dissipating their fire-power against inappropriate targets. For this purpose, the covered tankettes would normally be used, *as carriers only.*

The heavy tanks, naturally, have their place, but not in this discussion. Their tactics would not be affected by the use of the little fellows, except as the value of the former would be increased by the presence of the latter.

These thoughts are offered as a solution to nothing. The reasoning may be faulty and the logic worse. The idea may be too fantastic to be practicable. The problem of supply of gas and oil may be insurmountable. Mass production would certainly have to grow to gargantuan proportions, far beyond anything we can imagine now. But before discarding the idea in its entirety, I invite attention to the opinion of a master tactician. In the "Memoirs de Foch" by Raymond Racouly, the Marshal says, while discussing the stalemate of trench warfare in 1915:

Why was it the Germans could do nothing against us? Why could we do nothing against them? Because the necessary matériel was lacking. We had to secure this; something that could not be secured in a day or a month. Everyone apparently believed that this form of warfare was something new in the history of war. On the contrary it is something that frequently happens. Roman history tells us that the legionaires, in addition to the very heavy arms that they carried with them, their shields, their javelins and so on, took good care to become comfortable in the field by carrying heavy impedimenta for their camps. At the beginning of the war, we were somewhat like a Roman soldier who had only his offensive arms to strike with, without the shield and other impedimenta. The shield is as indispensable as the javelin or the spear. When we did secure the necessary matériel, such as tanks, which we originally lacked, that form of war which we erroneously call war of movement began again.

If you like—fire-power plus mobility, behind an adequate shield.

Ⓘ

Kenmore

KENMORE is one of the most interesting of the many Colonial homes of Virginia. It is becoming better and better known for its own beauty and for the very interesting history which clusters around it, and to which a recent incident has just added.

Extensive restoration work is being done by the Kenmore Association. In the excavation for the restoration of the old kitchen, workmen uncovered a mouldering box which, after a more careful examination, proved to be a rough burial casket that contained remains of a Union soldier.

After the battle of Fredericksburg, Kenmore was used as a Federal hospital, and this "unknown soldier" was probably buried at that time. In the spirit of patriotism and love of country which Kenmore represents, arrangements for reinterment of the remains in the National Cemetery, which already contained the remains of more than thirteen thousand unknown Federal soldiers, were promptly made, and on a beautiful December afternoon the cortège left Kenmore. The remains had been placed in a new casket, and this, draped with a large United States flag, which often floated from the Kenmore flagstaff, was placed on a caisson to be borne reverently to the final resting place. When the cortège had reached the cemetery and the reinterment had been made, a gun of Battery F, National Artillery, fired three shots as a last military honor to the fallen soldier.

This same hill, on December 13, 1862, was crowned with Confederate batteries which, a short time before the hour of this peaceful salute, had roared defiance to a brave foe. The contrasts are startling, but what blessed contrasts they are. And the most startling and significant contrast is that the honorary pall-bearers of the unknown soldier included the "Drummer Boy of Shiloh," Maj. Gen. John L. Clem; a son of a Union soldier who had been in the battle of Fredericksburg, Col. Tenney Ross; and a Confederate engineer officer, Vivian Minor Fleming, who had fired the last gun in that battle.

The Infantry

REGULAR — NATIONAL GUARD — RESERVES

The 4th Infantry's Antiaircraft Rifle Firing

This month we present in our series of reports on antiaircraft rifle firing that of the 4th Infantry, Col. J. K. Partello commanding. This report presents some very interesting and important ideas that have not yet appeared in these columns. The full report and accompanying papers are here reproduced. They are worth careful reading.—EDITOR.

1. . . . The following report, on the Eastman Gun Camera used in connection with the antiaircraft tests conducted by the 2d Battalion, 4th Infantry, November 6-24, 1929, inclusive, is submitted.

2. The Mark I Machine Gun Camera, made by the Eastman Kodak Company . . . is standard equipment in the Air Corps, and was secured from Headquarters, 41st Division Aviation Squadron, Spokane, Washington. The camera was designed primarily for the purpose of improving aerial gunnery. With the aid of this instrument, it was found possible to check the aiming of the gun and obtain graphic records of results; in other words, photographs were produced showing where the bullet would have gone had the gun actually been used, and whether or not the leads taken were correct.

3. When the proper lead is figured and the trigger is pressed, the machine gun camera takes a series of pictures of the enemy craft at the rate of about two hundred exposures a minute. Fewer shots may be obtained by pressing and releasing the trigger as desired.

4. When the films are developed, the picture of the airplane will appear at various distances from the center of the exposure. By knowing the distance from the enemy airplane and its speed, proper leads can be definitely determined, and those taken can be checked for accuracy.

5. The use and application of the machine gun camera by ground troops firing at enemy aircraft will produce the same effect in estimating proper leads as from one aircraft to another, and its use by the Infantry should be very instructive, as the results of the leads can be accurately checked if the speed of the aircraft and the distance from the firer are known. It must be remembered that firing from one plane to another and firing from the ground at a moving plane produce the same results (bumping of the plane caused by air currents excepted), since in the former case a windvane foresight automatically applies the necessary correction for the speed of the gunner's plane. The gunner, therefore, when using the automatic sights, takes no account of his own speed, but aims exactly as he would were he firing from the ground. The automatic windvane foresight is replaced by a fixed lead sight (see A in Plate 1) when firing from the ground at a moving plane.

Plate 1 also shows a ring backsight B, which was primarily designed for use in aerial gunnery and consists of an outer and an inner ring of such a radius that a plane flying directly across the line of sight at one hundred miles per hour, air speed, would pass from the edge of the outer ring to the center of the inner ring in the time taken for the bullet to reach the plane. Since the radius of the ring sight is constant, it can readily be seen that as

Plate 1—Eastman Gun Camera Attached to Lewis Machine Gun.
Used in Antiaircraft Troop Training, 4th Infantry.

the range to the plane increases there is a proportionate increase in the distance from the plane to the point where the trajectory of the bullet would be intercepted by the plane, and consequently when the ring sight is used the vital parts of the plane are placed on the edge of the ring regardless of the range. This is true only providing the eye is held nineteen inches from the ring sight and the body of the plane is not foreshortened.

6. If, therefore, the gunner should see a target plane flying at one hundred miles per hour directly across his line of sights—i. e., if the body of the plane is not foreshortened—he must lay the gun so that the vital parts are on the edge of the ring and the body pointing towards the center of the ring. In any case it is absolutely essential that the body of the plane should point toward the center of the ring.

7. Should he see the plane flying partly toward or away from him—i. e., if the body of the plane does appear foreshortened—he must place the vital spot somewhere within the ring, at a distance from the center that depends on the amount by which the body of the plane is foreshortened.

8. Should the body be pointing straight towards or away from him, he will place it in the center of his ring and aim point-blank.

9. In conducting the tests described under Phase II of the basic report, the characteristics of the ring sight described above were not considered, and the inner ring of the rear sight only was used in the same manner as a very large peep sight on a service rifle; consequently, as the range to plane increased it was necessary to increase the number of leads.

Explanation as to how leads were determined:

10. The camera film when developed shows a series of concentric circles in which the true center is shown. (It must be remembered that the screen was aligned with the gun sights.)

11. From this photograph it was possible to determine where a bullet, fired when the trigger was pressed, would have hit or passed the airplane had it been flying at any given speed. (During the test the plane averaged one hundred miles per hour.) In other words, it was possible to tell whether the gunner had carried out his part of the shooting correctly. To accomplish and prove this the following procedure was followed:

a. A line was faintly drawn by ruler on the film, through the body of the airplane parallel to the direction of motion. (This line passes through the propeller or "prop boss" and the front edge of the fixed tail plane where it meets the body.)

b. From the center mark on the film draw another line parallel to the above line and measure along this second line from the center mark in a direction opposite to that of the flight of the plane, a distance corresponding to the leads ordered. If a one-length lead was ordered, measure back on the line drawn through the center of the circle a distance corresponding to the length of the plane from head to rear as shown in the photograph and found by means of a pair of dividers. If more than one length lead was ordered, the same procedure is followed except that the length of the plane (the unit of measure) is applied as many times as the required number of leads.

c. The point so found is the spot where a single bullet fired when the trigger was pressed would have passed the plane; the distance between this point and that part of the plane shown in the picture from which the lead was taken represents the firer's error in estimating the correct lead.

12. It is the belief of the author (Major Eberle) that a miniature gun camera could be developed for practical use with the service rifle and that such a camera would be of inestimable value in giving to ground troops a realistic conception of the proper leads to be taken when firing at aircraft.

ANTIAIRCRAFT RIFLE FIRE, 2D BATTALION, 4TH INFANTRY

MAJ. SIDNEY S. EBERLE, and 1ST LIEUT. KAMEIL MAERTENS, 4th Infantry

Experimental tests in infantry antiaircraft defense were conducted by the 2d Battalion, 4th Infantry, during the period November 6-24 (1929) inclusive. These tests followed upon completion of the ground target rifle course and were divided into three distinct phases as follows:

PHASE I. Training in antiaircraft sub-caliber rifle marksmanship as outlined in Section V, Tentative Training Regulations 300-5, November 15, 1928.

PHASE II. Training involving practical problems with airplanes, testing the methods and principles of estimating correct leads as taught in Training Regulations 300-5.

PHASE III. Training involving practical problems testing methods of protection against attack aviation by an infantry battalion on the march.

PHASE I

The object of this training was to train four squads in the principles and methods of instruction and test the training and firing course contained in Training Regulations 300-5.

Prior to the training of the squads, four selected noncommissioned officers were given a short course in the training and firing. These noncommissioned officers were used as assistant instructors.

Four squads . . . were given the training and fired the course in antiaircraft marksmanship as laid down in Training Regulations 300-5. Due to

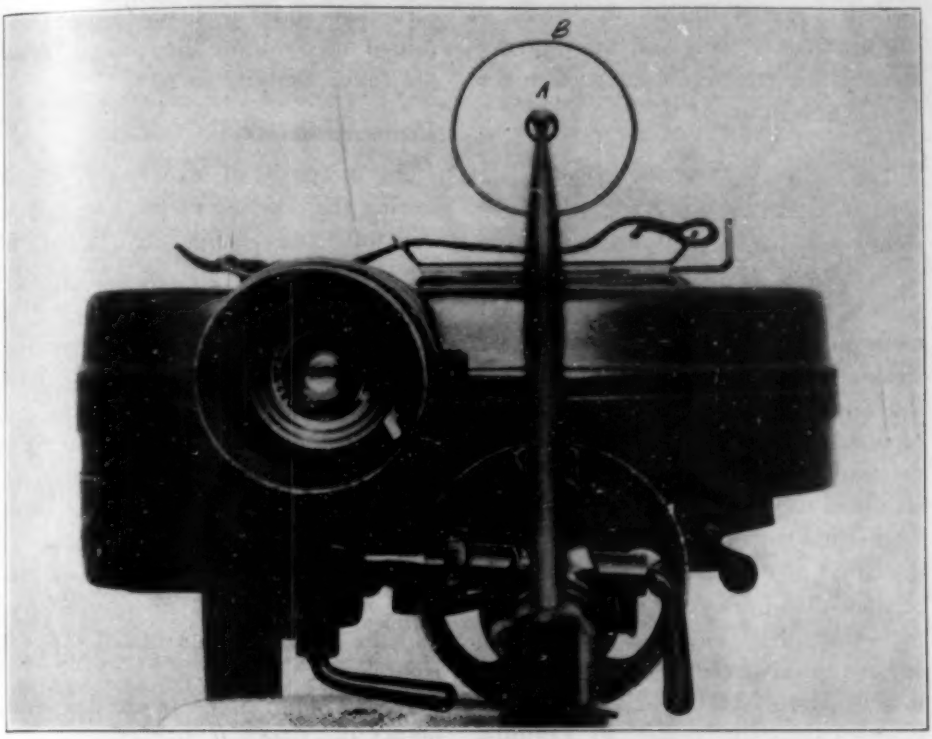

Plate 2—Eastman Gun Camera Attached to Lewis Machine Gun.
Used in Antiaircraft Troop Training, 4th Infantry.

the limited availability of men and the desire to test changes and additional methods of instruction in leading and firing, it was decided to put two squads . . . through the course first. These squads were regularly constituted squads and were not composed of selected men of proved marksmanship ability.

The training period for the first two squads was from November 5 to November 12 (both dates inclusive). Each training day consisted of five hours, with the exception of Wednesdays and Saturdays which had three training hours. The total time allotted for the training was thirty-six hours.

The instruction given and the course fired were as prescribed in Training Regulations 300-5, with the exception of minor changes in the position of the firer and what are believed to be improvements in methods of leading and squeezing the trigger and getting leads.

After the completion of the training course by the first two squads, the second two squads . . . were given the antiaircraft training. These squads were allotted only a period of twenty-eight hours for their training. This was eight hours less than that allotted the first two squads. It was thought that the firing with various leads at stationary targets could partly be eliminated from the course of the individual instruction and that part of the time and ammunition for this firing could be used to better advantage in firing at moving targets. Also, the ex-

perience gained during the firing of the first two squads and the improvement in the method of instruction was to the advantage of the last groups to fire.

The scores made by the second groups in firing the standard of efficiency test before individual training, as compared to those of the first two squads, indicate that progress had been made in the demonstrations, firing position, method of gaining leads, and squeezing the trigger while the rifle is in motion. However, the scores made by the last two squads in the final standard of efficiency test firing show less improvement over their first firing than that of the first two squads. This is undoubtedly accounted for by the fact that they had less firing with various leads at the stationary targets. It is, therefore, believed that the stationary firing prescribed in Training Regulations 300-5 is an important phase of the individual instruction in antiaircraft marksmanship.

The results of firing the course in the first and last standard of efficiency tests are:

First two squads

	First firing	*Second firing*
Group 1 . . . one squad	67	262
Group 2 . . . one squad	68	279
Second two squads		
Group 3 . . . one squad	142	252
Group 4 . . . one squad	154	232
Aggregate score		1025
Average score per squad		256.2

The results and comparison of the scores made by each squad in the standard of efficiency test fired before individual training and the standard of efficiency test fired after the completion of the individual training clearly prove that the methods of instruction and the firing course contained in Training Regulations 300-5 are fundamentally correct.

Recommendations:

As a result of experience gained during the training of the four squads the following changes and additions are recommended:

(a) *Firing Position.*—The firer takes the kneeling position as required by Training Regulations 150-5, then pushes his left foot well forward and *to the left,* raises his body off his right foot and keeps the body *nearly erect;* both elbows free from the body as in the "offhand" position; the sling is not used; the left hand grasps the piece *hard* near or at the upper band, and the piece is gripped hard with the right hand.

It was found that this position eliminated the tendency to follow or lead the target by jerks and permitted the firer to move his rifle in the desired direction by moving his body instead of by the use of the left arm. This corrected the fault of pivoting the rifle at the shoulder which resulted in an appreciable error in the alignment of sights.

(b) *Leading Target and Trigger Squeeze.*—The first firing clearly demonstrated the general tendency of the firer either to *set off the shot at a particular instant* by jerking the trigger, or *permit the rifle to settle a fraction of a second while applying the final squeeze.* The jerking of the trigger the instant the lead was attained resulted in wide shots, causing the shots to hit behind the targets. After considerable experimenting the following method of gaining lead and firing gave the best results.

Align the front sight (through the rear sight) on the tail of parallel (or bottom of vertical) silhouette and take up the slack in the trigger; by moving the body, move the sights rapidly through the longer axis of the silhouette in the direction of the desired lead; *start the squeeze* when the front sight is one length from the desired lead; continue the squeeze while attaining the one length lead required.

For example, to fire with a one-length lead, align the sights on tail of silhouette and take up the slack in the trigger, move the sights along the longer axis of silhouette, when the front sight reaches the forward edge of the silhouette start the squeeze; the final squeeze is applied while gaining the one-length lead. By applying this system of shooting at moving targets the number of hits increased fifty per cent and the shot groups decreased in size by one-half, and were better placed. This method also eliminated to a large degree the tendency to jerk the trigger at the instant the desired lead had been attained and also corrected the fault of permitting the gun to settle while applying the squeeze. It was found after some practice that pressure was applied to the trigger in sufficient force to complete the squeeze while the distance of one lead was gained. *It helped solve the difficulty of squeezing the trigger while the rifle is in motion.*

In shooting at the swinging target (see Plate 3) the above method of trigger squeeze was used, but the system of getting leads differed somewhat. Due to the fact that this target gains and loses elevation as well as distance, shot groups were generally low on the upward swing of the target and high on the downward swing. To correct the placement of the shots the following methods of getting leads were tried with satisfactory results. When the target is going up to vertical from horizontal, align the front sight on lower rear corner of silhouette, move

Plate 3—Firing at the Swinging Target.

Plate 4—Bird's-eye View of Antiaircraft Range.
Arrow Indicates Parallel Moving Target

the front sight diagonally through the silhouette to the upper forward corner, start the squeeze, and continue moving the front sight along the imaginary line established, complete the squeeze while gaining the one length lead needed. When the target is moving from the vertical to the horizontal, the same procedure is followed except that the front sight is aligned on the upper rear corner of the silhouette and moved diagonally through it to the lower forward corner.

The marked improvement in scores made in firing the second standard of efficiency test, over those made in firing the first standard of efficiency test, was due, it is believed, to the methods of getting lead and applying the trigger squeeze as described.

(c) *Firing Course Moving Targets.*—The firing course as prescribed in Training Regulations 300-5 leaves the direction in which the lead is to be taken optional with the firer. In view of the fact that airplanes will undoubtedly attack from positions, or directions which will require the firer to lead either to his right or left, the necessity of training the soldier in leading and firing at targets moving from left to right and from right to left is at once apparent.

This could be provided for by changing the training and the individual firing course at moving targets and the standard of efficiency tests so as to require that alternate shots be fired in different directions. That is, one shot is fired each time the target moves from right to left and from left to right. This affords the firer practice in taking leads and firing in both directions. This is believed to be important, as many men favor firing with leads either to their right or left, and if left optional will result in their ability to fire, with a fair degree of effectiveness, only with leads in their favored direction.

(d) *Parallel Moving Targets.*—It is the opinion of those that took the training that firing at the parallel moving target would be of more value if the targets were elevated about fifteen feet from the ground. (See Plates 4 and 6.)

The firer would then have to elevate

Plate 5—Firing at the Vertical Target.

the muzzle of his rifle at an angle of about twenty-five degrees. This would more nearly approximate firing at a plane flying parallel to our position. The elevated parallel target could be constructed on the principle of an overhead carrier by the use of a cable or heavy wire, pulleys and weights. This would necessitate a small platform at one end of cable so as to permit changing of targets. A suitable target carrier could be attached to the traveling pulleys. A target of this nature would not only result in better training but would require fewer men to operate it and insure a more uniform speed.

(e) *Vertical Targets.*—These targets work satisfactorily. It was found necessary to attach a sandbag to the end of the rope, thus retarding the upward motion of the target in sufficient time to prevent the top of the target frame from crashing against the top pulley arm. (See Plate 5.)

(f) *Swinging Targets.*—These targets work satisfactorily but are difficult to handle on account of the weight of the pendulum. It is recommended that a substantial wire be fastened on the lower cross beam of each support, and a hook fastened about two feet below the target carrier on the pendulum. The work of keeping the pendulum lowered while targets were being changed would be easier and safer. It is also recommended that a platform be built to facilitate the changing of targets. This platform should be of sufficient height and size to permit a man to work on both sides of the target.

(g) *Scoring Targets.*—A system

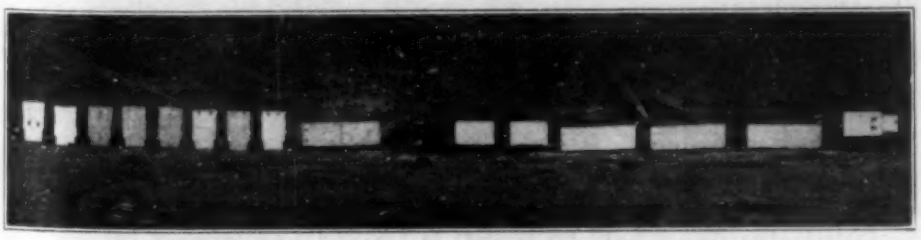

Plate 6—Demonstration and Triangulation Targets
Moving Target (Parallel) at Right

whereby scoring silhouettes could be pasted on the target would save considerable time in changing targets. These could be made in such a manner as to require only one pasting for the entire firing of one man for a particular phase of instruction firing.

Conclusions.—The improvement in antiaircraft marksmanship shown by the scores during the short period of training indicates that the training and firing courses contained in Training Regulations 300-5 are fundamentally correct. It is believed that, given a thorough course in sub-caliber antiaircraft firing, infantry can be trained to deliver effective fire against aircraft and thereby provide the best means of defense against attacking planes.

PHASE II

The purpose of this phase of training was to test the ability of the leader to estimate correct leads with a plane in flight at various distances and altitudes, and in addition to test the ability of the firer to apply the leads as announced.

Inasmuch as it was impossible actually to fire with caliber .30 ammunition at towed targets, because of lack of proper facilities and danger involved, the above tests were conducted by means of an Eastman gun camera, clamped on the right hand side of the barrel casing of a Lewis machine gun. This gun was used in aiming at the plane in flight in the same manner as the service rifle would have been used. In actual shooting it is necessary in aiming the gun to make allowance for the speed of the enemy's airplane by taking the proper lead, and the gun camera shows whether the allowance has been correctly made. To use the gun camera the gunner lays the sight on the enemy's plane, takes the designated lead, and presses the trigger of the gun at the moment when he considers he has the required lead. The effect of pressing the trigger is to expose the film in the gun camera, and the resulting photograph, when developed and measured, shows how far he was right or wrong in his aim.

For the test a plane was secured through the courtesy and cooperation of the 116th Observation Squadron, Maj. C. V. Haynes, Air Corps, commanding.

The plane was given a mission consisting of the following tasks:

Plate 7—Leaving the Road Preparatory to Taking Up Concealment Formation During Attack by Aeroplanes.

Task No.	No. of flights	Estimated speed of plane in M.P.H.	Altitude of plane in feet	Horizontal range to target in yards	Slant range to target in yards	Initial aiming point used	No. of rounds fired, each photo corresponds to one round	No. of hits determined by correct leads as shown in photograph
1	2	100	200	188+	200	1 TLS[1]	97 (L reel)	22
2	2	100	300	298+	300	2 TLS	97 "	15
3	2	100	400	323+	350	3 TLS	97 "	11
4	2	100	500	364—	400	4 TLS	97 "	5

[1] TLS=target lengths.

Conclusion: The results obtained show that the training in leads as taught with the sub-caliber rifle were fundamentally correct and enabled the leader and firer to correctly estimate leads when firing at the actual plane in flight.

PHASE III

The purpose of this phase of training was to test out suitable formations for the protection of an infantry battalion on the march against low-flying attack aviation. It was planned to have the attack planes make at least four surprise attacks on the column while it was on the march within a given area. During the first two attacks the battalion was to test out methods of concealment only, and the observers and pilots of the attack planes were to report whether or not the concealment formations were effective. During the third attack the battalion was to adopt a defensive formation, utilizing the infantry weapons, and the observers and pilots were to report on the vulnerability of this formation. The positions taken by the ground troops during the third attack were to be marked with suitable targets, after which the troops were to be marched to a position of safety, and upon a prearranged signal a fourth demonstration attack was to be made with the attack planes firing at the targets, the number of shots and hits to be recorded.

Through the courtesy and cooperation of the commanding officer of the 116th Observation Squadron, Maj. C. V. Haynes, four planes were secured for the tests. The tests took place as planned on November 21, 1929. The weather was clear, visibility excellent, temperature at ten degrees above zero. The area utilized for the attack on the column was along the Seven Mile road from Fort George Wright to Seven Mile Bridge, a distance of approximately five miles. The road was of brown dirt, winding and rather hilly, terrain to the sides of which was covered intermittently with scattered brush and tall pine trees.

For the conduct of the demonstration the following field exercise was issued:

FIELD EXERCISE

Employment of attack aviation against an infantry battalion on the march.

1. *General Situation.*

a. Maps—Seven Mile and vicinity, 1/10,000.

b. The Spokane River is the boundary between two states at war, Red (northeast), Blue (southwest).

c. Reds have air superiority.

2. *Special Situation.* (Blue)

a. Preparatory to an invasion of Red territory the 2d Battalion, 4th In-

Plate 8—Taking Cover During Air Attack.

fantry, was ordered to march to Seven Mile with a mission of establishing a bridgehead to cover the crossing of the remainder of the 5th Brigade.

b. The 2d Battalion, with Company E as advance guard, marched from its bivouac southeast of Spokane at daylight, 21 November, via Cooperstown-Seven Mile Road and at 9:20 a. m. the point of the advance guard had reached RJ 103 (287.40—864.90).

c. At 9:25 a. m. the battalion commander received information to the effect that hostile attack planes had been observed ten miles northwest of Seven Mile.

3. *Requirement.*

a. 2d Battalion.

(1) Action taken by the battalion commander and disposition of troops in case of attack.

Instructions to Red air service:

At 9:20 a. m. an enemy battalion was observed marching northwest on the Cooperstown-Seven Mile Road, with its head at RJ 103 (287.40—864.90). Attack and delay march of column.

Requirement.—Observe and report upon effect of attack on column and vulnerability of troops after deployment.

The plans and instructions as outlined in paragraph 1, Phase III, were also known to the commanding officer of the attacking planes.

At 9:10 a. m. upon receipt of information that hostile attack planes had been observed ten miles northwest of Seven Mile the battalion commander had the bugler accompanying him sound Call to Arms. This was the signal known to the battalion to take up immediately a prearranged open formation. The march was not delayed. The point and advance party, being already in open formation, continued the march. The support and main body, having been formerly in column of squads, changed into open formation as follows: the leading squad of the support moved to the right of the road in column of twos; the second squad halted until the first squad had gained a distance equal to its length and then moved to the left of the road in column of twos; the third squad went to the right and so on until the entire column was in open formation. (See Plate 8.) This open formation keeps the squads intact, is simple to

execute, and readily understood by the men. When this open formation was taken up four men of the rear squad of the column formed a rear guard point. With this point were an officer and a bugler. There were also an officer and a bugler near the head of the column. The purpose of this rear guard point was to watch for attack planes and, in the event they were sighted, the proper bugle call was sounded.

At 9:33 a. m. when the head of the column was about two hundred and fifty yards north of RJ 103, the bugler with the rear guard point sounded Attention. This was the prearranged signal known to the battalion, indicating that enemy planes had been *sighted*. This bugle call, Attention, simply alerted the column. The march was in no way interrupted. At 9:35 a. m, the bugler with the battalion commander sounded one long blast. This was the prearranged signal known to the battalion, indicating that the planes were attacking. Immediately upon hearing this signal the troops dispersed and took cover. The troops were trained to such a degree that only five to eight seconds elapsed from the sounding of the long blast until the entire column was off the road in concealment formation, face down. When the long blast was sounded the squads on the right of the road took cover to the right and those on the left of the road took cover to the left. The first and third pairs of each squad ran at right angles to the road for a distance of about thirty yards, while the second and fourth pairs for a distance of about twenty yards when a skirmish formation was quickly adopted which produces a dotting effect extremely hard to observe and difficult to hit. (See Plate 8.)

The troops were not given the signal to leave the road and seek cover until the planes were within five or six hundred feet of the column and commencing their dive preparatory to opening fire. Having been a pursuit pilot familiar with the phase of attacking ground troops, I kept the battalion on the road until it was absolutely necessary to deploy same. Because of this fact the march was not unnecessarily delayed and the troops obtained a definite idea of the logical time to leave the road and the number of seconds necessary to seek concealment before being actually fired upon.

As soon as the attacking planes had passed overhead a sufficient distance so that the observer in the rear of the plane could not detect movement of the individual members of the battalion, the bugle call Assembly was sounded upon command of the battalion commander, which was the prearranged signal for the column to form on the road and continue the march in the same open formation.

It will be noted that only four signals were given, namely:

a. Call to Arms—indicating that enemy planes were somewhere in the vicinity.
b. Attention—indicating that airplanes had been sighted.
c. One long blast—indicating that the planes were attacking and that the column must leave the road and seek concealment.
d. Assembly—indicating that the battalion would immediately reform on the road in the same formation as before leaving and continue the march.

Three buglers were assigned as follows: one bugler with the battalion commander near the center of the

column; one bugler with an officer near the head of the column; one bugler with an officer near the rear of the column. Any one of the three buglers were authorized to sound the call Attention, but only the bugler with the battalion commander was allowed, upon command of the battalion commander, to sound the long bugle blast or the Assembly call. This placed the responsibility of getting the troops off and back on the road upon the battalion commander. It is believed that once Attention is sounded indicating that the planes have been sighted, that the officer in command of troops (and he should be thoroughly familiar with various methods of maneuvering employed by attack planes) should give the signal for deployment of troops and the signal for reforming and continuation of the march. This simplifies matters and avoids confusion, as was indicated by results obtained.

Several surprise attacks (more than planned) were made on the column while marching a distance of approximately three miles. During these attacks formations for purpose of concealment only were attempted. The results obtained from each attack were similar in nature to the description given of the first attack. Invariably the planes attacked with the sun's rays and hit the column from head to rear or vice versa.

Upon reaching the Seven Mile range, which is in the open, the column was again attacked. On this occasion the battalion deployed in the same manner as it had on previous attacks, with the exception that each individual soldier of those squads which had been trained in antiaircraft firing in accordance with Training Regulations 300-5, instead of lying face downward, took up an offensive combat position, kneeling, and simulated firing at the attacking planes. After the planes had completed their attack the position of each man was marked with a suitable target, and after the battalion was marched to a position of safety, upon a prearranged panel signal the attacking planes returned and fired at the targets. Because of safety considerations only the positions taken by the personnel of seven squads, plus eight targets to represent machine gun carts, were actually fired upon.

The targets were fired upon by Lewis machine guns installed in two Douglas airplanes and were fired from the rear cockpit by the observer from an altitude of three hundred feet.

Results of the firing were as follows:

No. of targets fired at	*No. of targets hit*	*No. of rounds fired*	*No. of hits on all targets*
64	15	171	21

Following is a copy of the consolidated report on the results of the demonstration made by Maj. C. V. Haynes, commanding officer of the attacking planes, giving the Air Corps point of view.

1. Reference is made to Training Memorandum No. 22, Headquarters 2d Battalion, 4th Infantry, dated November 21, 1929, and the following consolidated report thereon is submitted:

(a) At 9:25 a. m., November 21, 1929, the following personnel and equipment took off from Felts Field, Parkwater, Washington, to the vicinity of Seven Mile Range, to attack the 2d Battalion, 4th Infantry, en route from Fort George Wright to Seven Mile.

Pilot	*Observer*	*Airplanes*
Maj. Caleb V. Haynes	1st Lieut. Charles O. Holter	Douglas O-2H, with Lewis Machine Gun
2d Lieut. Lawrence S. Heral	2d Lieut. Dwight M. Smith	Douglas O-2H, with Lewis Machine Gun
1st Lieut. Claude A. Owen	Capt. Robert W. Owen	Consolidated O-17
1st Lieut. Edgar C. Bigelow	Pvt. Henry Rice	Consolidated O-17

(b) Our first attack was at 9:35 a. m. at approximately three hundred yards north of RJ 103. The attack continued at ten-minute intervals until the troops were in the near proximity of destination, Seven Mile Range, the airplanes at all times performing the various suitable attacks with the sun's rays, in order to surprise the ground troops.

(c) The alertness and quickness of the ground troops to deploy, conceal, and assemble without confusion was very commendable. In every phase of the problem upon the approach of the airplanes the troops would deploy to cover and remain so until the airplanes had passed, to the extent that their location was very difficult to determine from the air. The nature of the terrain was scattered brush and intermittent tall pine trees.

(d) Upon reaching the Seven Mile Range, which is in the open, a series of aerial attacks were made against the ground troops deployed, assuming the offensive combat formation. The position of each man, cart and animal, was marked with appropriate panels, and after the ground troops were withdrawn to a safe distance, Lewis machine guns installed in the two Douglas airplanes were fired from the rear cockpits by the observers, in a total of seven different attacks at an average height of three hundred feet. A total of one hundred and seventy-one rounds were fired, with a resultant score of twenty-one hits. The airplanes returned to Felts Field, Parkwater, Washington, at 10:50 a. m.

(e) The results obtained from the Air Corps point of view were very instructive, because it demonstrated that if ground troops take available cover upon the first approach of airplanes and remain perfectly still until the airplanes are well past, the chances of being detected from the air are remote, especially in grassy, bushy, or wooded lands. Visible movement is very easily detected from the air. Therefore, in country which is brushy, stumpy, or among any such objects that cast a similar shadow, it is much better for troops to remain standing—perfectly still—than to deploy in the prone position. However, in open country this does not apply, unless it is desired for the troops to assume the aggressive.

(f) In our experience we have observed on previous occasions that ground troops were prone to begin moving as soon as the airplanes passed overhead. This should be avoided, if possible, as the observer of the airplane is facing to the rear and, therefore, will detect the movement after the airplane has passed over, when he would not have otherwise discovered the location of the troops at all.

(g) Except those men actually observing the airplanes, the ground troops should not look up during the attack, as the contrast of the face against the darker background simulates a heliograph and is very easily detected.

2. The mission as a whole was very interesting, as well as instructive to all participating, and if it is desired on the next problem to use front as well as rear guns, also fifty-pound demolition bombs, on simulated ground troops, carts, animals, etc., efforts will be made to do so.

Conclusions: Some interesting conclusions can be drawn from the demonstration described under Test III. The conclusions are:

(a) The best protective measure

for infantry on the march against low-flying attack planes is the adoption of a hastily dispersed offensive formation utilizing the infantry weapons.

(b) Infantry quickly taking available cover upon the first approach of attack planes and remaining immobile until the airplanes are well past, will in all probability escape detection from the air.

(c) The effect of aircraft machine gun fire on a properly dispersed column is slight.

(d) The delay of a column on the march will be almost negligible and casualties few, providing troops are thoroughly trained in antiaircraft firing and methods of quickly adopting practical aggressive formations.

(e) All infantry officers should be thoroughly versed in both sides of the game—air tactics as well as ground tactics.

(f) At ranges under five hundred yards a plane can easily be disabled by infantry skilled in antiaircraft firing.

(g) Signals warning of an attack should be few and simple to avoid confusion and produce desired results.

(h) The fact that the infantry troops suffered very few casualties during the seven different attacks with the firing taking place at a three hundred-foot altitude and free from antiaircraft firing, gave a decided boost to the "Doughboys" morale.

Final Conclusions:

(a) Some phase of firing at a moving target should be included in the record firing rifle course.

(b) All infantry officers should make it a point at every opportunity to observe from planes attacks on infantry columns on the march and in bivouac, in order that they may more efficiently care for their commands during air attacks.

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Regular Army

THE 3d Infantry Brigade has its own way of handling recruit instruction. When the number of recruits assigned to each regiment of the brigade, the 9th and the 23d Infantry, exceeds thirty, the regimental recruit detachment is formed. This detachment has three battalion sections with a competent and experienced officer from each battalion in charge of the section for that battalion, under the supervision of the battalion commander.

The instruction prepares the recruit to take his place in the ranks of his own company. It includes actual practice firing with service ammunition with the weapon with which he will be armed when he joins this company.

The 23d Infantry, Col. A. A. Parker commanding, requires recruits to be familiar with important points of the history of the regiment. These recruits also make a tour of the garrison and have everything explained to them. In this manner, when they join their regular companies, they have some acquaintance with garrison life and their pride in their organization has been awakened.

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In the 2d Infantry, Col. F. B. Shaw

commanding, the gallery season with both rifle and pistol has been under way since December 1. A small-bore competition between companies will be held in March and April. All rifle companies and headquarters and service companies will be entered in this competition. All members of each organization, commissioned and enlisted, who are present and on a duty status for seven or more consecutive days during the period of competition, will be considered as firing members of their organizations. If they do not fire they will be given a score of zero.

At northern posts, such as those of the 2d Infantry, small-bore training and practice are particularly necessary in order to obtain satisfactory results on the regular range, since the time for outdoor training in rifle marksmanship is very limited. Each company has a most satisfactory small-bore range in the attic of its barracks. The cost of construction of these ranges is about forty-five dollars. On account of the shortage of space a description of these ranges is omitted this month. We shall probably include it in the INFANTRY JOURNAL for April.

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The 3d Infantry, Col. W. C. Sweeney commanding, fired a telegraphic small-bore rifle match against the 28th, the 5th, and the 26th Infantries late in January. The 3d Infantry score of 2513 was high enough to defeat the 28th and the 5th, but not enough to beat 2534, the score of the 26th Infantry at Governors Island.

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The 4th Infantry small-bore rifle team under Lieut. K. Maertens is going stronger than ever this year. Up until February 1 it had won all of its matches against other regiments and against the strong Spokane Rifle Club.

①

The 7th Infantry, Col. F. W. Rowell commanding, celebrated its 132d anniversary at Vancouver Barracks on January 8. The day began with "holiday reveille." Then followed commemorative exercises, special dinners in the company messes, an officers' luncheon, and a grand military ball. At the commemorative exercises about seventy-five recruits, who had joined the regiment since the previous organization day, were assembled and presented to the regimental colors in a unique and impressive ceremony.

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At Fort Crook, Nebraska, Col. C. A. Trott, commanding the 17th Infantry, presided at a ceremony for the annual presentation of regimental trophies and medals to the members of his command. The occasion gave opportunity for reviewing the excellent results that the regiment had attained during the past year. Colonel Trott presented eight medals and trophies.

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The 19th Infantry, Col. F. R. de Funiak, Jr., commanding, is proud of a recent record in the bayonet qualification test. Pvt. 1st Cl. Nicholas Spartichino of Company E made it. He ran the qualification course for record on December 14, 1929, and made a score of one hundred per cent, with a time of thirty-five and four-fifths seconds.

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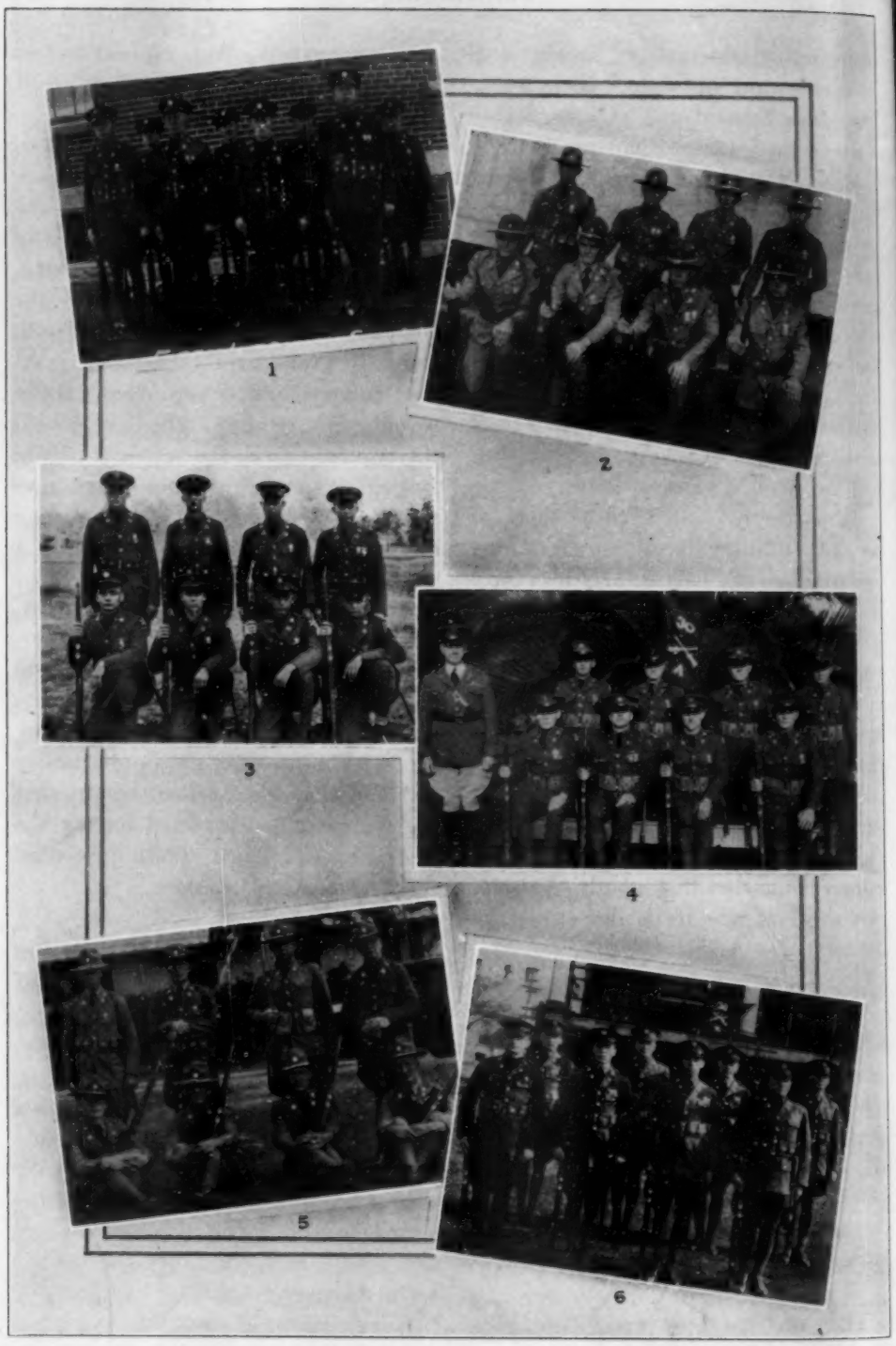
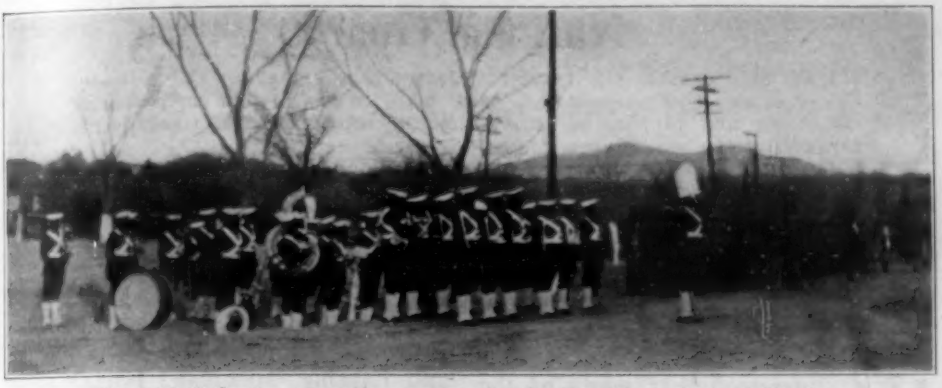
On January 16 a part of the 25th Infantry, under the command of Maj. G. M. Halloran, assisted in ceremonies honoring Mr. Pascual Ortiz Rubio, President-elect of Mexico. As the



Chief of Infantry's Combat Team Squads

1, 1st Inf.; 2, 14th Inf.; 3, 20th Inf.; 4, 30th Inf.; 5, 33d Inf.; 6, 38th Inf.



The 25th Infantry pays its respects to the President-elect of Mexico.

presidential train pulled into Nogales, the Howitzer Platoon fired the presidential salute, while the 2d Battalion presented arms and the band played the Mexican national anthem. Brig. Gen. E. L. King, who was present, said of the affair that the 25th Infantrymen were "one of the finest appearing bodies of Infantry that I have ever seen during thirty-five years of service."

In California the 30th Infantry, Col. F. R. Brown commanding, fittingly observed its regimental day on February 3, the day that marked the twenty-ninth anniversary of the birth of the regiment. Although July 15, the anniversary of the Second Battle of the Marne, has been officially designated as regimental day, the regiment is so dispersed during the summer months that it became necessary to choose another date for the ceremonies.

One of the high-lights of the day was the dedication of the beautiful bronze memorial plaques donated to the organizations of the regiment by the 30th Infantry Association. These plaques bear the names of all officers and men of the 30th Infantry who were killed in action or decorated for bravery during the World War.

The rifle companies of the 30th Infantry are giving a great deal of attention to small-bore practice. Every man will fire a small-bore qualification course. In order to keep everyone interested there will be a system of handicapping, so that the final scores ought to be close.

The Chief of Infantry has announced the following squads as members of the Chief of Infantry's combat team:

1st Infantry, Fort Francis E. Warren, Corp. G. Garrett's squad of Company C;

14th Infantry, Fort Davis, Corp. R. C. LaCasse's squad of Company G;

20th Infantry, Fort Francis E. Warren, Corp. Bog Voges' squad of Company F;

25th Infantry, Camp Harry J. Jones, Corp. W. Reed's squad of Company C;

25th Infantry, Camp Steven D. Little, Corp. E. Love's squad of Company E;

30th Infantry, Presidio of San Francisco, Corp. J. Platanak's squad of Company A;

33d Infantry, Fort Clayton, Corp. R. D. Jones' squad of Company B;

38th Infantry, Fort Douglas, Corp. L. Simmons' squad of Company E.

National Guard

With this number the INFANTRY JOURNAL *is extending the National Guard notes. Our purpose is to be of more service to that component of the Army and to pass on information of what National Guard units throughout the country are doing.*

In this task we bespeak your help. If you have plans that are working out to advantage in your organization send them along, let us work them up in form for publication in these columns, in order that others may have advantage of them.

Infantry officers on duty with the National Guard are especially requested to devote an interest in this department and to help us in making this department of the JOURNAL *of real value to the National Guard.*

N. R. A. MATCHES

IT is understood that many of the units of the National Guard throughout the country are availing themselves of the opportunity of entering teams in the N. R. A. small-bore matches which are now under way. The organizations that do participate in this firing will find it to their distinct advantage when it comes to range practice next year at the annual encampments.

All units armed with rifle are eligible to enter into the N. R. A. competitions. The firing is done at the home armories on targets furnished by the National Rifle Association; after the firing these targets are mailed to the headquarters in Washington.

Organization commanders interested in this matter should address Maj. Gen. M. A. Record, National Rifle Association, Woodward Building, Washington, D. C.

CHIEF VISITS NATIONAL GUARD UNITS

During the months of January and February Maj. Gen. William G. Everson, Chief of the Militia Bureau, made a visit to the National Guard headquarters in the states of the I Corps Area in New England. He also made an extended trip through the middle states territory. His itinerary included visits to the National Guard units at Norwalk and Toledo, Ohio; Detroit and Lansing, Michigan; Fort Wayne and Indianapolis, Indiana; Chicago, Springfield, and Decatur, Illinois; Madison, Wisconsin; St. Paul and Rochester, Minnesota; Des Moines, Iowa; Louisville and Frankfort, Kentucky; and Charleston, West Virginia.

During the year, and before the opening of the training camp season in June, General Everson hopes to visit all of the states and get a first-hand knowledge of the National Guard situation. During the summer he contemplates visiting many of the annual encampments.

In the course of his trips General Everson fills many speaking engagements and has opportunities to be of vast service to the Army as a whole, and he is taking advantage of these occasions.

NEW EXECUTIVE OFFICER

On March 1 Col. William H. Waldron, Infantry, D. O. L., takes over the duties as Executive Officer of the Militia Bureau, which have been so ably carried on by Col. John W. Gulick for the past four years. Due to his sympathetic understanding of the problems of the National Guard, by his open and aboveboard dealings and his absolute fairness, Colonel Gulick has endeared himself to the

members of the National Guard throughout the country.

Colonel Waldron comes to the Bureau with a background of more than thirty-one years of active service in the Army, during which period he has served with the National Guard of many of the states. He has been a staunch supporter of the National Guard throughout the years and has an understanding of their problems. That he will carry on from the point where Colonel Gulick leaves off there can be no doubt.

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FIELD OFFICERS' CLASS AT INFANTRY SCHOOL COMPLETES COURSE

The 1930 National Guard Field Officers' Class at the Infantry School has ended after a very interesting course which included: Organization of the Army of the United States; Animal Management and Transportation; Chemical Warfare Service; Command, Staff and Logistics; Instructional Methods; Medical Service; Military History; Musketry; Organization; Signal Communications; Staff Maps; Tactics; Topography; Training; and Weapons.

The officers who completed the course satisfactorily are:

Col. Gordon C. Hollar, 133d Inf., Iowa N. G.
Col. Joseph F. Pomeroy, 158th Inf., Ariz. N. G.
Lieut. Col. William P. Townsend, 206th Inf., Minn. N. G.
Maj. Stuart A. Baxter, 148th Inf., Ohio N. G.
Maj. George N. Browning, 159th Inf., Cal. N. G.
Maj. Joseph R. Carvolth, 112th Inf., Pa. N. G.
Maj. Harry R. Chadwick, 132d Inf., Ill. N. G.
Maj. William V. Copeland, 120th Inf., N. C. N. G.
Maj. Samuel W. C. Hand, 161st Inf., Wash. N. G.
Maj. Lawrence B. Harris, 201st Inf., W. Va. N. G.
Maj. Edward McK. Johnson, 5th Inf., Md. N. G.
Maj. Harry B. Jordan, 116th Inf., Va. N. G.
Maj. Allan McCluer, 155th Inf., Miss. N. G.
Maj. Billie E. Paul, 74th Inf. Brig., Ohio N. G.
Maj. Julian L. Peek, 124th Inf., Fla. N. G.
Maj. Norman L. Thompson, 151st Inf., Ind. N. G.
Capt. Clarence A. McCall, 125th Inf., Mich. N. G.

This special course lasted from January 6 to February 12. It is becoming more and more popular each year and the National Guard is finding it a distinct advantage to get as many officers through it as possible each year.

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CHICAGO NATIONAL GUARD COMMISSION

Supporters of the National Guard in Chicago have revived the National Guard Commission of the city, which was established by Governor Lowden in 1920. Governor Emmerson reconstituted the committee with the following officials: Bernard E. Sunny, president; Samuel Insull, Jr., and Stuyvesant Peabody, vice presidents; Harold E. Foreman, treasurer; and Hal S. Ray, secretary. The executive committee is composed of the president, the two vice presidents, Maj. Gen. Milton J. Foreman, Robert M. Hunter, Fred W. Sargent, C. W. Seabury, S. H. Strawn, and R. W. Ibenfelt.

The mission of the commission is primarily the organization of community support for the National Guard units of the city. This includes raising and disbursing funds for the activities of the National Guard which are not provided for by federal or

state funds. For this purpose it is expected that the sum of $50,000 will be raised. It will be expended for the upbuilding of the morale of the Guard and for recruiting purposes. Some of the items included in the list are: transportation and rations for troops engaged in patriotic demonstrations, remodeling and refitting uniforms, supplying trophies for individuals and units that win the competitions in the National Guard, athletics and other entertainments, equipping and maintaining company and battery recreation rooms, non-military services of bands, supplementing mess funds of units, and extraordinary expenses at training camps.

Major Gen. R. D. Keehn, who commands the 33d Division, has set forth his ideas very clearly on the subject of the relations of the National Guard and the people of the community as follows:

The National Guard should be made a part of the life of the community in which it is located, to attract desirable personnel and to receive the material and moral backing necessary to its well being as a military organization. It is equally necessary that the National Guard be a civic asset to the community, that its armories be so located and constructed as to provide suitable facilities for use as centers of community activities, high school athletics, civic assemblages, public meetings and entertainments.

This same idea can apply in many communities where units of the National Guard are stationed. No doubt it is being done. We should be very glad to hear from officers where such plans are working successfully, in order that we may be of more service to the National Guard in passing them along to others.

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MASSACHUSETTS SCHOOL UNIFORM

A very attractive uniform has been adopted by the authorities of the National Guard Training School of the State of Massachusetts. It is made up of the Army melton olive drab coat and elastique trousers, the latter being adorned with stripes down the outer seams. The noncommissioned officers' chevrons are of the West Point type. Both stripes and chevrons are of Infantry blue, as is the band on the Pershing style cap, which completes the uniform.

The mission of the Massachusetts school is to prepare selected men for commissions in the Massachusetts National Guard. It is a time-honored institution in the Bay State, which dates back almost to the Revolutionary War, and which has been carried on periodically ever since. It was in full operation before our entry into the World War, but was discontinued during the war period. It was revived again in 1927, with a two years' course, during which time the cadets attend week-end sessions at the State armory at Cambridge. The sessions are held once a month from September until June, and last from Saturday noon until Sunday evening.

With an enrollment of fifty-one cadets, apportioned among the various units of the National Guard, the school started operations in September, 1927. Twenty-four of these cadets graduated in June, 1929. The losses are accounted for by resignations for business and personal reasons and to accept commissions in the Massachusetts National Guard.

The school has a high standing in National Guard circles and among the citizens of the state. Its operations are supervised by an academic board of prominent active and retired officers of the Massachusetts National Guard. The instructor personnel includes a corps of qualified National Guard officers and the officers of the Regular Army on duty with the National Guard of the state.

OKLAHOMA REGIMENTAL COMPETITIONS

Colonel Ewell L. Head, 180th Infantry, Oklahoma National Guard, has instituted a unique series of regulations governing military competitions in his regiment. In the federal inspection competition, values have been assigned to the ratings and sub-ratings which are included in the inspecting officer's report. A value of one hundred points' credit is allotted to a rating of very satisfactory; seventy-five points to satisfactory; and fifty points to unsatisfactory. A sum of all ratings and subratings is the basis for the unit standing, and the organization that has the highest total is declared the winner of the federal inspection contest.

A complete set of rules and regulations has been prepared and distributed. They cover the conduct of tests and competitions in the regiment, and provide for competitions in army administration, the automatic rifle, communications, close order drill, equipment competitions, extended order drill, first aid, interior guard duty, machine gun drill, mess management, pyramidal tent pitching, shelter tent pitching, and howitzer drill.

In the competition in close order drill each rifle company of the regiment may enter one platoon, organized for the purpose. It consists of four complete squads, with a right and a left guide, and is commanded by a platoon sergeant. The competition is held during the period of the annual active duty training of the regiment. A value of ten points is given to each movement.

The platoon forms on the company parade and marches to the drill ground, where the platoon commander reports it to the judges. Ranks are opened and the platoon is given a minute inspection for neatness in appearance of uniforms, soldierly bearing of individuals, cleanliness of clothing and equipment, and completeness of clothing and equipment. The rating on this phase of the competition is arrived at by giving the platoon an initial credit which is arrived at by multiplying the number of men in the unit by four. This will give a credit of one hundred and forty points. Then each item of the inspection found deficient on any man counts as a demerit of one point.

Ranks are then closed and the platoon proceeds with the close-order drill part of the competition. The platoon sergeant takes position in front of the center of the platoon, which is formed in line. At a given time the senior judge hands him a copy of a memorandum showing the movements that his platoon is to execute. He is allowed three minutes to examine the list, to ask questions, and to formulate his plans. The drill then proceeds in accordance with the movements set forth in the list. In arriving at a rating the judges consider the following elements: commands by the platoon sergeant, performance of guides, performance of squads when the movement is basic by squads, performance by platoon when the movement is basic

by platoon, squad alignments when the squad leader is responsible for same, platoon alignments, and the position of pieces of individuals during the execution of each movement.

In arriving at a rating for the drill movements the judges assign a maximum total which is computed by multiplying together the number of movements, the number of men in the competition, and the numerical value of each movement, which is ten points. Thus if fifteen movements were provided for, the total maximum would be 15 x 35 x 10=5250 points. Deductions from this total are made as follows: for improper or wrong command by the platoon sergeant, five points; for movements improperly executed by guides, five points; for each movement improperly executed by each squad, two points; for movements improperly executed by the platoon, five points; for each instance of improper alignment by squads, two points; for each improper alignment by platoon, five points; and for each improper handling of the piece by an individual, one point. The total of all these deductions are made from the possible score, and what remains is the platoon's score. This added to the total number of points awarded under the inspection feature gives the score of the platoon in the competition.

Each judge makes his score independently, and the average of the three scores is that accepted by the board of judges. The platoon that has the highest total points awarded wins the competition.

Another interesting event is the competition in mess management. The regulations that govern this provide that all organizations of the 180th Infantry which have messes at camp are automatically entered in the mess management competition. The names of mess sergeants and cooks who are actually doing the cooking are furnished to the regimental adjutant not later than the third day of the camp.

All messes are inspected each day by a medical officer in the rôle of sanitary inspector. His inspection covers the following points: surrounding grounds, general appearance of mess, mess tables, stoves, kitchen utensils, care of bread, storage of supplies, care of food, ice boxes, garbage separation, care of garbage stands and cans, food handlers' certificates, flies and fly traps, appearance of mess personnel, and meals. The sanitary inspector prepares a mess rating card on which the mess is rated, and this rating is considered as a part of the competition.

In addition to all of this the competition judges make inspection of the messes. They inspect mess accounts, bills of fare, handling of mess supplies, and preparation of meals. The ratings on the two features of the inspection determine the standing of the companies in the competition, in which there is much rivalry.

All of the other features of the regimental competitions have been worked out with the same careful attention to details by Colonel Head, who had the valuable assistance of Capt. R. A. D. Stanis, Infantry, D. O. L., the regimental instructor of the organization.

Each man who wins an individual competition or who is a member of a unit which wins a unit competition, is awarded a bronze badge which is a replica of the regimental coat of arms and to which is attached a bar indicating the event in which the owner participated. This bar gives the year in which it was won and indicates the

competition for which it was awarded. In addition the winner's unit is given a certificate of award, signed by the regimental commander, and setting forth the names of the men who did the good work.

This is the most complete set of instructions for the conduct of competitions which has come to our attention. It is highly worthy of consideration for adoption by other regiments of the National Guard.

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Reserves

The INFANTRY JOURNAL *desires to extend the Reserve notes. Unfortunately, there is not much material at hand. We want Reserve officers and Regular officers on duty with Reserve units to furnish us with items about their units that, from their subjects, should be of interest to other Reserve organizations. Believing that personal items are less interesting than those of official doings we ask that contributions be of the latter kind.*

THE 358th Infantry, Col. L. E. Hill commanding, at Fort Worth, Texas, is noted for leadership in many ways. It takes great pride in being the first Reserve regiment to have subscribed for a regimental box at the Infantry School stadium.

The latest activity of the 358th Infantry was a dinner at the Regimental Officers' Club at Fort Worth. The officers and ladies of the regiment and other local Reserve personnel, Regular Army instructors, and a number of National Guard officers made up a company whose presence together went far toward promoting good feeling and fellowship.

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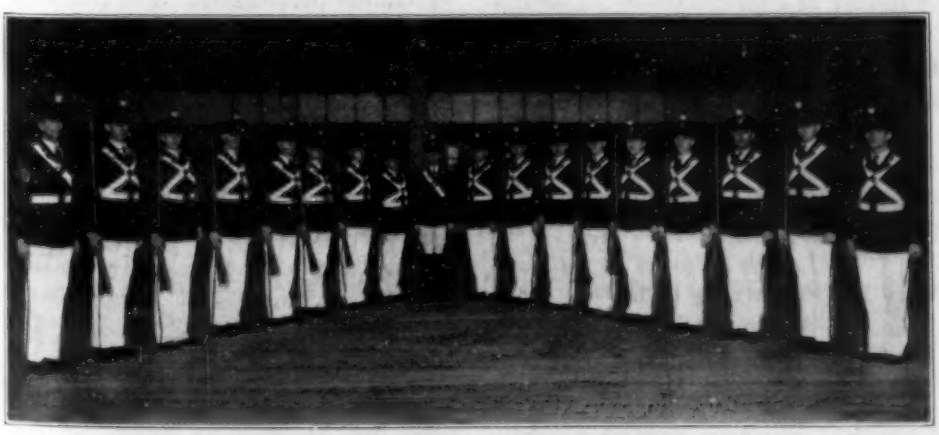
Company B, Pershing Rifles, is at home at the State University of Iowa. It is the "crack squad" of this company. It has given several exhibitions recently. Competitions with similar squads from other mid-Western R. O. T. C. units are in contemplation for this spring. With its distinctive uniform and its old .45-caliber Springfield rifles, stocks painted old gold and metal parts painted black to conform to the University colors, the squad has a really "snappy" appearance.



The Crack Squad of Company B, Pershing Rifles State University of Iowa.

Books

WILD MEN OF THE WILD WEST, by Edwin L. Sabin. Thomas Y. Crowell Co., New York, 1929. 414 pages. $2.50.

Although written primarily for boys by an author who knows the West, this series of accounts of Wild Men who terrorized the West will appeal to the adult reader who wants to know the gunman of the picturesque frontier as he really was—stripped of the romantic glamor that fiction has given him.

"Wild Men of the Wild West," the result of exhaustive research among source books and original records, presents the story of vicious Harpes of early Kentucky, Mike Fink of river fame, Lafitte, the pirate smuggler, Joaquin Murieta, Jack Three Fingers and Tiburcio Vasquez of California gold rush days, Henry Plummer, Jack Slade, Billy the Kid, Wild Bill Hickock, Clay Allison, Cherokee Bill, and many another bad man in his true character as a killer.

In contrast with the men who made bravery a brag there are presented the men who made bravery a duty: John X. Biedler, Neil Howie, Boone May, Scott Davis, Nathaniel K. Boswell, Clark Stocking, Bill Tilghman, and Pat Garrett.

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WHY WE FOUGHT, by C. Hartley Grattan. The Vanguard Press, New York, 1929. 453 pages. $3.50.

"There is work to be done to prevent this war of ours from passing into popular mythology as a holy crusade."

The above words, which appear on the title page of "Why We Fought" explain, in large part, the mission of the book.

That mission, very evidently, is to discredit our motives in entering the war, and the book leaves the impression that if it had included an account of our active participation in the war it would have attempted to discredit the motives of the men who fought our cause in France. Incidentally, this reviewer does not understand the WE in the title, for Mr. Grattan was not yet sixteen when San Mihiel was fought.

The book is written from one angle and, in consequence, is of questionable value as history. The author repeatedly refers to the preparedness movement as expressed in the national defense act of 1916 as a movement toward war. He says on page 113: "It (the preparedness propaganda) was definitely a move in the direction of American participation in the war."

A list of the journals to which Mr. Grattan has contributed is indicative: *The Nation, The National Republic,* and *The American Mercury.*

In his dedication the author asserts that he draws a sharp distinction between individuals and governmental policies.

It may be his sincere desire to do so, but when the individuals (whose motives are depicted as selfish, if not

actually sordid and insincere) happen to be the President of the United States, his cabinet members and counsellors, and members of Congress it is difficult, if not impossible, to disassociate individual and governmental motives.

On page 380 the author writes that Colonel House "was either grotesquely obtuse or subtly malign" when he offered the President certain counsel, and further down on the page Mr. Grattan states that Colonel House's remarks "may with justice be considered machiavellian." On page 404 he refers to the Zimmermann-Mexican "plot."

Colonel House is the arch villain throughout the book's 410 pages, with Ambassador Page his co-conspirator. That both of these men were anglophiles may perhaps not be gainsaid, but they could hardly have been as low as the motives attributed to them by Mr. Grattan.

The last chapter states almost gloatingly that as President Wilson was delivering his war address to Congress, Senator La Follette "threw back his head now and then with a sneering laugh."

Those of the slacker type will derive great comfort from "Why We Fought."

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JANE'S ALL THE WORLD'S AIRCRAFT OF 1929, compiled and edited by C. G. Grey. London. Sampson Low. 1929.

The nineteenth issue of "Jane's All the World's Aircraft" gives clear and comprehensive information about the latest developments in civil and military aviation. The editor divides his compilation into five main parts. He gives first place to the progress of civil aviation. Next he presents a considerable amount of official data regarding the "set-up" of the "service aviation" of the various governments. The editor uses the term "service aviation," evidently, in order that no confusion may result from the different nomenclature and organizational arrangements that exist in the air-war arms of the various nations. For example, the Finnish Republic has only the Finnish Air Force; whereas one finds that for the United States Jane lists, after the air arms of our Army and Navy and Marine Corps, the air arm of the U. S. Coast Guard.

Greater interest attaches to the next section, the largest of the work, "All the World's Aeroplanes." Here one rejoices to find that apparently no manufacturer except Mr. Ford has failed to contribute all the data that could be published concerning his organization, his plant, and a thorough, although well-condensed catalogue of the specifications and sometimes the output of all his different types of planes. This section—as are all the others—is illustrated with excellent plates and sketches. The next section covers the same ground for aero-engines.

"All the World's Aircraft" achieves its purpose: a complete survey of the field up to the end of 1929.

The Infantry Association

Professional Journals and the Infantry

HUMAN progress in every line of endeavor has been due to concerted effort. Man cannot stand alone. We are civilized today because we have worked together. Those who follow any profession make progress and obtain recognition of their importance in the scheme of things chiefly by means of their professional organizations. There is probably no active profession that does not have such an association to promote its interests and improve the service it renders. These associations are necessary, otherwise they would not exist.

The Infantry of the Army of the United States was not generally recognized as the most important arm of the service until it had established its own headquarters and had its own chief in the War Department. The Infantry needs an organization in addition to its official organization to insure solidarity among its members, to exchange its ideas, to stand for its interests.

Every Infantry officer who wants our Infantry to be the best of Infantry, and who wishes to be a good Infantryman, should join the Infantry Association. If the organization includes only ten per cent of those who should be its members it is a weak and useless thing. If it is one hundred per cent strong it can render one hundred per cent service to the individual Infantryman and the Infantry as a whole. It is on this sound basis that we urge every Infantryman to join the Association which exists for the sole purpose of serving his interests.

Have you ever thought of the Infantry Association in these terms?

The INFANTRY JOURNAL is your professional journal. It is the best means for keeping up with developments in the Infantry. It carries messages from the Chief of Infantry about projects that are under way in his office. It is a vehicle for the exchange of ideas and information among Infantrymen.

The Service Department of the Association offers you PERSONAL SERVICE. It will obtain for you promptly any non-confidential information about your personal-military status. It is an informal contact between you and the Office of the Chief of Infantry. It will get you information on any military matters. It will execute commissions for you. It maintains a Housing and Information Service for you to use when you come to Washington.

The principal purpose of the PURCHASING SERVICE is to save you money. It is a particularly good agency through which to supply your personal and organization needs for military texts, reference books, fiction, or periodicals. The Purchasing Service furnishes engraving, stationery, Christmas cards, and a limited line of military accessories. High quality, low prices, prompt action, guarantee of satisfaction, budgeted payments, and a discount to members constitute a real service.

To do all of these things and to ex-

tend the scope of its SERVICE, the Infantry Association needs the support of every Infantryman.

The Association appreciates thoroughly the difficult financial position of Army officers. However, members of the Association who take advantage of the Purchasing Service, save not only the cost of membership, but a great deal more besides. Prove this to your complete satisfaction. Every Infantryman should be a member of the Association. It will be his Association's task never to let him regret it.

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News Bulletins

THE Association has recently adopted the practice of enclosing in all correspondence to officers a News Bulletin of some item of particular or timely interest to the Infantry.

Up to the time that the present JOURNAL goes to press the following bulletins have gone out:

U. S. INF. ASS'N NEWS BULLETIN NO. 1

The War Department is taking an active interest in the forthcoming pay investigation and is preparing to meet it.

On January 16, the Secretary of War designated a committee to prepare information on pay and allowances of commissioned and enlisted personnel of the Army, and to present such information, when called upon, to the proposed Joint Committee of Congress. The membership of the committee is Brig. Gen. G. S. Simonds, Infantry; Col. F. W. Coleman, F. D.; Lieut. Col. W. Bryden, F. A.; Maj. F. C. Harrington, G. S.; Maj. H. E. Pace, G. S.

Maj. S. G. Brown, G. S., and Capt. F. D. Keelty, F. D., are assistants for duty with the committee.

U. S. INF. ASS'N NEWS BULLETIN NO. 2

Investigation by the Infantry Association leads to the conclusion that the rumors as to reduction of Army commissioned personnel are without foundation in fact. No reduction can be made without Act of Congress. Though there has been some talk, nothing has been introduced, nor is anything in committee, proposing such action. Furthermore, we are unable to find evidence that any such action is in prospect.

U. S. INF. ASS'N NEWS BULLETIN NO. 3

The members of the Congressional Joint Pay Committee are:

Name	*Committee*
Senator Jones, Washington	Appropriations
Senator Reed, Pennsylvania	Military Affairs and Finance
Senator Oddie, Nevada	Appropriations and Naval Affairs
Senator Fletcher, Florida	Banking and Currency and Military
Senator Broussard, Louisiana	Appropriations and Naval Affairs
Mr. Burton L. French, Idaho	Appropriations
Mr. John G. Cooper, Ohio	Interstate and Foreign Commerce
Mr. Henry E. Barbour, California	Appropriations
Mr. William B. Oliver, Alabama	Appropriations
Mr. Robert Crosser, Ohio	Interstate and Foreign Commerce

U. S. INF. ASS'N NEWS BULLETIN NO. 4

The following Chambers of Commerce, Associations of Commerce, or Boards of Trade are known to have passed resolutions strongly supporting the Interdepartmental Pay Board Report:

Alameda, Calif., Birmingham, Ala., Charleston, S. C., Chicago, Ill., Columbus, Miss., Dallas, Tex., Dayton, Ohio, Detroit, Mich., Jackson, Mich., Mobile, Ala., New Orleans, La., Norfolk, Va., Oakland, Calif., San Diego, Calif., St. Paul, Minn., Seattle, Wash., Salt Lake City, Utah, Washington, D. C., Los Angeles, Calif., Phoenix, Ariz., Montgomery, Ala., and San Antonio, Texas.

Among patriotic organizations which have given voice to their support, are the American Legion, the Women's Patriotic Conference on National Defense, Military Order of the World War, and the United Indian War Veterans.

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The February Check-Up

THE INFANTRY JOURNAL of February carried with it a request for information that would enable us to check up on a variety of matters and to conduct a little self-examination.

The response has been so large and so prompt that we are having a hard time to keep up with it.

This notice is to thank each subscriber and member who took the trouble to respond, and they are many. We are tabulating the suggestions; we are studying them, and we are applying them as far as practicable. The results of the tabulation and the decisions at which we arrived therefrom, we shall publish in an early number of the JOURNAL.

We also wish this notice to serve as an acknowledgment of requests for information and orders for supplies. The latter we are filling as promptly as possible; the former we are replying to by letter at a little slower rate. We ask the indulgence of those officers who requested catalogues; our old one is not good enough to send out and our new one is being printed. We expect it from the press shortly.

We plan, from now on, to find out more and more what the members of the Association want in their JOURNAL and in the way of service. Then we shall do our best to give them what they want. To get this information we are going to use occasional requests for data on postage-paid return envelopes and cards. If every person who gets one of these will take a few minutes to use it as we request, we hope to attain our goal of complete service and satisfaction to every subscriber and member.